J. W. EVANS

LEAFHOPPERS AND FROGHOPPERS OF AUSTRALIA AND NEW ZEALAND

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The Leafhoppers and Froghoppers of Australia and New Zealand

(Homoptera: Cicadelloidea and Cercopoidea)

By

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PART I

BIOLOGY, DISTRIBUTION AND EVOLUTION

Introduction

Although the insect faunas of Australia and New Zealand are of remarkable interest, there are very few works which deal in a comprehensive fashion with particular groups. Neither are there, with few exceptions, and these relate especially to certain families of Coleoptera and Lepidoptera, reliably named collections available in Australia or New Zealand, which are in any way representative. This means that insect identification within Australia and New Zealand may present considerable difficulties unless insects are well known, or belong to groups being studied by an experienced and helpful specialist.

This work deals with two related groups of medium-sized Homoptera, which in most entomological text books are regarded as three groups and which are usually covered in a few short paragraphs. These insects present many problems of interest from the point of view of evolutionary development and geographical distribution; and, as well, include forms of some economic significance.

For a period of 35 years the writer has studied two of the comprised families (Cicadellidae and Eurymelidae) and has published many papers on various aspects of their biology, morphology and systematics. These papers are scattered in numerous journals and much of the information in them is now out of date.

The principle purpose of this work is to present under one cover such knowledge as the author has acquired of these groups of leafhoppers as they occur in Australia and New Zealand in the hope that it will aid identification of the majority, and perhaps, also, create sufficient interest to lead to their much-needed further study. In order to make it more comprehensive, the Membracidae and Cercopoidea are also included, and brief mention is made of the leafhopper faunas of New Guinea, New Caledonia and Lord Howe Island.

It is to be regretted that the day of the active amateur would seem to be nearly over, as such have in the past contributed very greatly to entomological knowledge. Their passing would not be of such great moment if their place was being adequately filled by professional workers, but this is far from being the case.

Many who might wish to take an interest in systematic studies are sometimes deterred at the outset by the burden of literature which, as an initial step, needs to be referred to and understood. This certainly is often a formidable obstacle but it is unavoidable. Once, however, it is overcome, such studies can provide a continuing and expanding interest. While a geneticist may have the satisfaction of working in a field which lies in the vanguard of the advance of knowledge of the mechanics of evolution, a systematist can make a contribution to an understanding of some of the factors which have made evolutionary change possible. In addition, a systematist is often best able to appreciate the significance of such changes.

Throughout this work the aim has been followed of endeavouring to make identification as simple as possible and this is the reason for the abundance of illustrations. Nevertheless, in some genera, especially among those which have a cosmopolitan distribution, species recognition will be found to be difficult. This is partly due to lack of clear-cut differentiating characters, but also because critical studies have not been made owing to lack of adequate material. Were publication to have been delayed until such time as it might have been found possible to deal with every group on a uniform basis, and in an equally comprehensive fashion, then it would never have taken place at all.

Because of the desire to produce a work which is practical and helpful a policy of "lumping" has been adopted. An alternative course would have meant, for example, that instead of a single species being recognized in the genus *Stenocotis* Stål, thirteen would have been needed to be accepted. In this genus, as well as there being considerable differences in size and in colour pattern, sexual dimorphism also occurs. The reason for the "lumping" in this instance is that the sexes have not been correlated and the male genitalia of all the several colour forms examined are approximately identical. Another example is to be found in the genus *Eurymela* Le Pelletier and Serville, where no less than 9 names have been sunk under the specific names of *E. distincta* Signoret and *E. fenestrata* Le P. & S. In this instance, the size range of the various forms is inconsiderable and sexual dimorphism lacking but the various colour combinations are so numerous, many more than the eleven which have been named, that to give each of them specific or even sub-specific status, would, in the present state of knowledge, result in needless complications. Another reason for recognizing only two instead of several species is that the male genitalia of all the various colour forms show no marked differences in shape.

Very little is known about the geographical ranges or the food plant associations of the various forms in the two genera mentioned, and it is possible that the policy of "lumping" which has been followed may mean that specific status has been denied to representatives of some populations of leafhoppers, which might merit it were the facts of their biology better known.

It is also possible that, on the basis of differences of male genitalia, some forms may have been incorrectly considered as distinct species. Müller (1958) has shown how environmental and seasonal factors may influence the shape of the aedeagi in *Euscelis* spp. and doubtless similar occurrences are widespread within the Homoptera.

While the category of a species has some flexibility, since a "species" may include representatives of populations which are not entirely homogeneous, species nevertheless have some degree of approximate equivalence. This is far from being the case with higher categories, and genera, tribes, sub-families and families within a single super-family are by no means always of corresponding status.

Within a group which has undergone its evolutionary divergence in a restricted geographical area, there is, in most instances, no difficulty in the selection of genera. This is because, unless they are monotypic, they are merely assemblages of related species which are separated from other such assemblages by some distinctive morphological characteristic shared in common.

In other instances it is not so simple and the determination of the limits of genera is a matter for personal judgment. While in present-day systematic papers a certain amount of quantitative data is frequently presented, personal judgment remains all important. Such judgment, which is based on a critical evaluation of the factors available for study, depends in part on a knowledge of comparative morphology, but above all on insight based on knowledge, experience and understanding.

A critic who has not himself undertaken systematic studies may be surprised to note that some of the specific names which have been sunk as synonyms are of insects described by the author. In other words that he has committed the seemingly flagrant error of describing the same species more than once! The explanation is that with increasing knowledge, based on longer experience, views on the criteria which separate species in certain genera may change.

Some 619 species are dealt with in this work. This number is not only clearly considerably less than the actual number of species of cicadelloids and cercopoids existing in Australia and New Zealand, but it is also less than the number available to the author for description.

Some species have not been described because of inadequate material. Others, because it is considered that their description would serve no useful purpose. The first reason might seem a surprising one since several species have been described on the basis of single specimens, but this has been done only when they represent forms of particular interest.

In regard to insects in the second category mentioned, the Macropsinae provide an example of a group of leafhoppers which contain a large number of known undescribed species which deliberately have not been named. While this is an unusually stable sub-family, since their present day representatives probably differ very little from their Mesozoic forerunners, nevertheless they display prolific speciation. Since the numbers of macropsids already described establish the existence of this evolutionary characteristic, there would seem to be no useful purpose served by describing numerous additional species which seemingly are to be found in almost every geographical, climatic and floristic unit.

On the other hand the Thymbrini, which are a group of leafhoppers of probable Tertiary origin, display considerable evolutionary plasticity of a different nature and of a greater magnitude and this is evident from the numerous comprised genera. Consequently, the naming and description of new species in this group have greater justification since it may provide information of some evolutionary significance.

For reasons of economy of space long lists of locality records are not given but only particulars sufficient to provide information on the broad pattern of distribution of the various species. It needs to be remembered that distribution records of insects very frequently do no more than indicate areas where insects have been sought and seldom represent the range of distribution of particular species.

General Characteristics

Australian cicadelloids, or "leafhoppers", range in size from 1·7 mm to 28 mm. The smallest Australian cercopoid, or "froghopper", is 5 mm in length and the largest 19 mm.

In comparison with the faunas of some other parts of the world, most Australian, and nearly all New Zealand, leafhoppers and froghoppers are drab insects, being predominantly brown, green or yellow.

With the exception of a single large and colourful cercopoid recorded from northern Australia (which is actually a component of the fauna of New Guinea), the most handsome and striking representatives of the two superfamilies within Australia are certain endemic cicadelloids comprised in the family Eurymelidae.

The heads of cicadelloids vary considerably in shape, and their ocelli may be ventrally, marginally or dorsally situated. At one time the position of the ocelli was used as a diagnostic character for purposes of classification, but it is now known to have but little phylogenetic significance.

In the thorax, both the pronotum and scutellum may be considerably modified, the former particularly, though not exclusively, in the Membracidae, and the latter especially in a family of the Cercopoidea, the Marchaerotidae.

The forewings, which are usually known as "tegmina", are of thicker consistency than the membranous hindwings which they serve to protect when the insects are at rest and the hindwings folded.

The tegmina may be reduced to a varying degree as may also the hindwings.

The abdomen, as in all Hemiptera, lacks cerci.

Relationships with Other Homoptera

The Homoptera comprise 3 series, the Coleorrhyncha, Sternorrhyncha and Auchenorrhyncha. Each of these is presumed to represent a separate line of evolutionary derivation from Protohomopterous ancestors.

The Cicadelloidea and Cercopoidea belong to the Auchenorrhyncha, which includes also the Fulgoroidea and the Cicadoidea.

The Fulgoroidea, although highly specialized in certain respects, retain more primitive characteristics than the 3 other superfamilies and it is presumed that they represent an earlier and separate line of Homopterous descent.

Although representatives of the Cicadelloidea and Cercopoidea closely resemble each other in general appearance and seem very different from cicadas, this resemblance is superficial since it is probable that the Cicadoidea and Cicadelloidea were derived from a common stem independently of the one which gave rise to the Cercopoidea. (Evans, 1963, a).

Biology

Very few studies have been made of the biology of Australian leafhoppers and froghoppers and, so far as is known, none of endemic New Zealand representatives of these groups. The biology of some representatives of the Eurymelidae has been investigated (Evans, 1931), and observations, accompanied by photographic illustrations, recorded of the emergence of machaerotid (cercopoid) nymphs (Hacker, 1922). In addition, several papers have been published on the biology of a few introduced species of some economic significance (e.g., Helson, 1942).

Both leafhoppers and froghoppers feed on plants and obtain food by means of suction. In order to do this the insects insert into plant tissue 2 pairs of needle-like stylets, the mandibles and maxillae. There are 2 channels between the apposed stylets, and salivary secretions are forced down one of these and plant sap is drawn up the other. These stylets lie in a dorsal groove in the "rostrum", or labium, and are gripped by the labium at its apex.

Eggs are laid in plant tissue. The ovipositor is serrated and has 2 pairs of sheathing valves. Young insects, which resemble the adults, although lacking wings, feed in the same situations as the latter. In those instances, where it has been recorded, there are 5 nymphal instars.

As suggested by their names, both leafhoppers and froghoppers can jump, and when disturbed either take off immediately with a sudden leap, or else, in a squirrel-like fashion, dodge around a twig or leaf. The nymphs of most cicadellids, though not of eurymelids, membracids and cercopoids, also have jumping powers.

It has been shown by Ossiannilsson (1949) that many, and possibly most, cicadelloids and cercopoids are able to produce sound by means of timbals situated on the first abdominal segment. Unlike cicadas, in which the male alone is capable of sound production, both sexes of leafhoppers and froghoppers can "sing", though both lack auditory tympana. The same author has discussed the part played by "song" in the biology of the 2 groups.

Plant Associations

The most interesting feature of the food plant associations of Australian insects in these groups is the preponderance of eucalypt feeders among the Eurymelidae, Cicadellidae and Cercopoidea and of acacia feeders among the Membracidae.

It is true that eucalypts and acacias are the dominant trees in the Australian flora, but their dominance is of comparatively recent date and very many present-day species of leafhoppers must have been in existence before it came about. This phenomenon is in accordance with the hypothesis of Southwood (1961), who has suggested that the number of insect species associated with a tree is a reflection of the cumulative abundance of that tree in the particular country throughout recent geological history (e.g., in the Quaternary period).

Of the older flora, which was dominant in mid-Tertiary times, and still has abundant representation, no Australian Cicadelloidea nor Cercopoidea have been recorded from conifers, and none from *Nothofagus*, although a single leafhopper, belonging to the Macropsinae, feeds on beech trees in New Zealand. A few eurymelids belonging to the Ipoini, and a few membracids, have been taken on representatives of the Proteaceae and some eurymelids on *Casuarina*.

The cicadelloid fauna of grasses, and of annuals and perennials generally, is very sparse both in Australia and New Zealand. For the most part it consists of introduced species, or, ones which are probably of recent adventitious origin and even these are not widespread but in Australia are largely confined to the northern, tropical, part of the continent. It is possible that species in many genera have restricted feeding habits but very few food-plant records are available.

Some leafhoppers as, for example, *Myerslopia* spp. (Ulopinae), are known to be associated with a particular environment, in this instance with litter on the forest floor, but information is lacking in respect to their food-plants.

The Australian Fauna

The most striking features of the Australian fauna are the high degree of endemism among the Cicadelloidea and its paucity within the Cercopoidea. Also, the great extent of the variation in size and colour pattern of different populations of certain species of cicadelloids, indicating genetic instability, and this is doubtless associated with recent changes in their environment.

The dominant Australian cicadelloids belong to an endemic family, the Eurymelidae, and there are 6 endemic groups of sub-family, or tribal, status within the Cicadellidae (Stenocotini, Thymbrini, Austroagalloidinae, Tartessinae, Trocnadini, Reuplemmelini). Although there is an abundance of endemic genera in the Membracidae, no endemic tribes and sub-families have yet been recognized. This may well be because of lack of critical studies.

It is presumed that the several endemic groupings mentioned above represent Tertiary evolutionary developments.

The remaining tribes and sub-families represented in the Australian fauna consist of pre-Tertiary relict groups (such as the Ulopini and Cephalelini); groups of cosmopolitan distribution, such as the Idiocerinae, which will have gained access to Australia at different times and by different means (island chains, adventitious transport, recent introductions), and those groups, which have sparse representation in north-east Australia, and which entered the continent from the north during Pleistocene times (e.g., Coelidiinae). It needs to be mentioned that apart from insects comprised in the late Indo-Malayan element, and those of recent introduction, very probably a higher degree of endemism exists among Australian forms belonging to cosmopolitan sub-families than the existing nomenclature suggests. Thus, for example, critical studies would probably disclose that no Australian leafhoppers placed in the genera *Macropsis* and *Idiocerus* are more than superficially congeneric with the type species of these two genera.

The New Zealand Fauna*

The leafhopper and froghopper fauna of New Zealand is a sparse, but interesting, one (Evans, 1963, b).

The oldest element includes representatives of the Ulopinae, which are comprised in 3 tribes. Of these, the Myerslopiini are known elsewhere only from Madagascar and Chile and the Cephalelini only from South Africa and Australia, whilst representatives of the Ulopini are of widespread occurrence in the eastern hemisphere.

The dominant group of New Zealand leafhoppers belongs to an endemic genus, *Novothymbris*, included in a tribe, the Thymbrini, otherwise confined to Australia. There are also numerous species, either of probable adventitious origin, or else which have been derived from adventitious insects. These are comprised in the Jassinae, Typhlocybinae and Deltocephalinae. In addition, there are some recent introductions which belong to these 2 sub-families and also to the Idiocerinae.

The above 3 distinctive elements may be classed respectively as Mesozoic relicts, Tertiary developments and recent accessions. There remain 4 groups of which, in each instance, the New Zealand representatives are of uncertain derivation and chronology. One of these groups, the Paradorydiini, is widely distributed in the warmer regions of the eastern hemisphere. Some leafhoppers in this tribe, but not all, frequent a damp environment and feed on rushes.

This fact is mentioned since so also do leafhoppers in another tribe of New Zealand leafhoppers, the Euacanthellini, which have been recorded elsewhere only from Tasmania and Mt Kosciusko in New South Wales.

Both the Paradorydiini and Euacanthellini would seem to belong to the middle range of present-day cicadellids, that is to say they are neither relict groups, nor, like the Deltocephalinae, of presumed comparatively recent origin.

The fourth group of problematical origin in New Zealand is the Macropsinae. These are an ancient, though not a relict, sub-family of widespread occurrence and the interest of the single New Zealand representative lies in the fact that it feeds on, and is very possibly restricted to, *Nothofagus*.

The Cercopoidea are represented in New Zealand solely by 2 species, which belong to the Aphrophoridae. Both of these species are comprised in endemic genera of which neither has representation either in Australia or in the Indo-Malayan region. One genus, *Pseudaphronella*, may possibly be related to a Chilean genus, while the other, *Carystoterpa*, has representative species also in Lord Howe Island.

The Faunas of New Guinea and New Caledonia

Brief mention needs to be made of the extent of the Australian element in the cicadelloid and cercopoid faunas of the two above-mentioned large tropical islands.

In respect to New Guinea, representatives of the following endemic Australian groups of cicadelloids are known to occur in the island: Eurymelidae, Thymbrini, Tartessinae and Trocnadini. Several of the eurymelids belong to species which occur also in Australia and there is one possibly endemic species. In the Thymbrini, an endemic genus has been recorded from New Guinea and this has representation also on Moa Island, near Timor. The greater part of the rich cicadelloid and cercopoid faunas of New Guinea, and of the sparse corresponding fauna of New Caledonia, is of Indo-Malayan origin. They, thus, have considerable affinity, but by no means close identity, with the late Pleistocene, Indo-Malayan, element of the fauna of north-eastern Australia.

Listed on page 336.

Zoogeography

There are more endemic groups of Cicadelloidea in Australia than occur in any other single land area. This fact is associated with the long period of time that the Australian continent was isolated from the rest of the world during the Tertiary period. The occurrence in north-eastern Australia of several species of leafhoppers and froghoppers, which are not found elsewhere in the continent, and which are representative of genera with close Indo-Malayan, but not Australian, affinities, provides evidence of late Tertiary land connections with islands lying to the north.

When consideration is given to the problem of the sources of the fauna prior to Tertiary isolation and the extent to which it may have received accessions, by adventitious means during isolation, it is necessary to enter the realm of speculation. Furthermore, in seeking explanations to account for present patterns of distribution, broad generalizations are not enough but every distinctive group needs to be considered as a special and separate problem. This requires a consideration of factors furnished by comparative morphology, evolutionary level and environmental association.

In Figure 1, a hypothesis is presented in relation to the periods and places of origin of the several principal components of the cicadelloid fauna of Australia and New Zealand. An explanation of the figure is given in the table which follows.

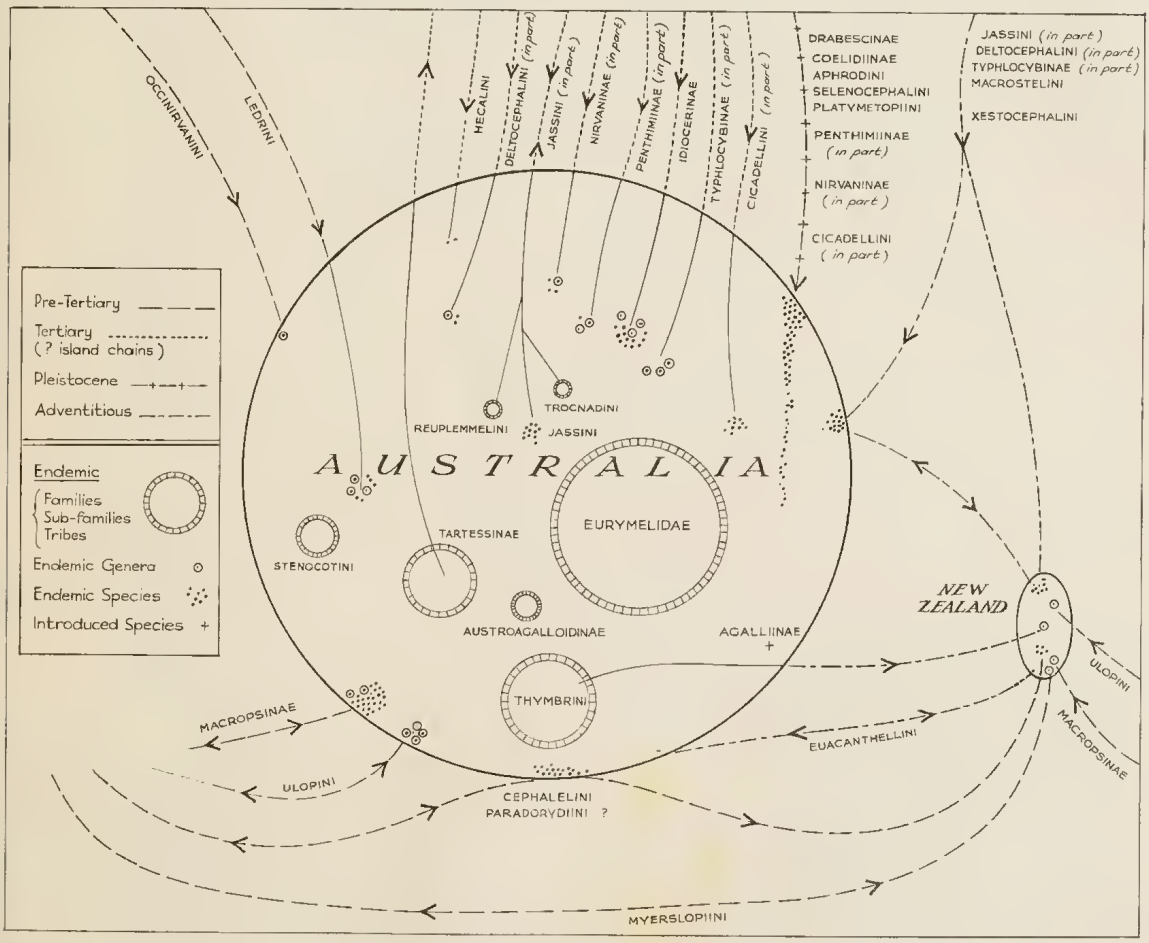

Fig. 1: The composition of the Australian and New Zealand fauna of the Cicadelloidea.

Some Possible Geographical Origins of Australian and

1	2	3	4	5	6	7
Group	Distribution	Possible Geographical Origin	Monotypic Endemic Genera	Other Endemic Genera	Total Endemic Species (in 4 and 5)	Non-Endemic Genera
						Presumed Pre-
Ledrini	Oriental Region, Africa, Madagascar, Australia (Europe).	India	3	2	7	2
Occinirvanini	India-Australia	Indo-Australian	1	..	1	..
Macropsinae	Cosmopolitan ..	Uncertain: possibly S. Hemisphere.	2	?	2	1
..	..	..	1	..	1	..
Ulopini	Universal with possible exception of W. Hemisphere.	Afro-Indian, Australian.	5	1	7	..
..	..	..	1	..	1	..
Cephalelini	S. Africa, Australia, N.Z.	..	..	..	..	2
..	..	..	..	..	..	1
Paradorydiini	Africa, Australia, N.Z., India.	..	..	..	..	1
..	..	..	..	..	..	1
Myerslopiini	Madagascar, N.Z., Chile.	..	..	1	2	..
						Endemic Groups
Stenocotini	Australia	Australia	4	2	12	..
Thymbrini	Australia, N.G.	Australia	5	7	39	..
..	N.Z.	..	..	1	7	..
Tartessinae	Australia, Oriental Region.	Australia	..	3	7	1
Austroagalloidinae	Australia	Australia	..	1	7	..

New Zealand Cicadelloidea (excluding Membracidae)

8	9	10	11	12
Comprised Endemic Species	Introduced Species	Distribution within Australia and New Zealand	Principal Food-Plants	Remarks
Tertiary Relict Fauna				
6	..	Widespread	Various trees, including eucalypts.	While possible that only a few existing genera may be of Pre-Tertiary origin it is probable that the Tribe was differentiated from the Ulopini during the late Mesozoic and that some representatives had access to Australia before Tertiary isolation.
..	..	S.W. Australia	*Casuarina*	Regarded as of Pre-Tertiary origin on grounds of morphology, distribution and food-plant association.
37++	..	Widespread	Various shrubs but only exceptionally on eucalypts.	While it would be possible to differentiate several species into generic groupings, this would obscure the remarkable stability of insects in this tribe.
..	..	N.Z.	*Nothofagus*.	Not closely related to any Australian forms.
..	..	Widespread, but especially in Tasmania. In Australia, to some extent associated with areas of relict fauna and flora.	Moss, reeds, various shrubs.	Although of almost world wide distribution, very possibly of S. Hemisphere origin.
..	..	N.Z.	..	.. ..
10	..	Widespread, but especially S.W. Australia and Tasmania.	Restioniaceae	Probably derived from the Ulopini during mid-Mesozoic times.
2	..	N.Z.	..	.. ..
6	..	Widespread	Wide range of food plants.	This tribe is included in the Pre-Tertiary fauna very largely because of its occurrence in N.Z., where it is improbably of adventitious origin.
5	..	N.Z.	..	.. ..
..	..	Widespread in N.Z.	Found in litter on forest floor.	Supposed mid-Mesozoic relicts on structural, as well as distributional grounds.
of Tertiary Origin				
..	..	Widespread	Possibly only eucalypts	Possibly derived directly from Ulopini, and representing a parallel development with the Ledrini. Differing irom the Ledrini in later origin, possibly initiated at time of Australian Tertiary isolation.
..	..	Widespread	Principally eucalypts	Possibly another development from a ulopid stock parallel with the Stenocotini.
..	..	Widespread in N.Z...	..	Possibly derived from an Australian adventitious immigrant; not closely related to any existing Australian genus.
22++	..	Widespread; some endemic genera associated with semi-arid environment.	Various trees and shrubs, including eucalypts.	Five of the described genera are confined to Australia. Two of the remainder are not represented in Australia but these are closely related to the widespread genus *Tartessus*.
..	..	Widespread	Eucalypts	

1	2	3	4	5	6	7
Group	Distribution	Possible Geographical Origin	Monotypic Endemic Genera	Other Endemic Genera	Total Endemic Species (in 4 and 5)	Non-Endemic Genera
Eurymelidae	Australia (New Guinea, New Caledonia).	Australia	19	13	86	..
Hecalini	Cosmopolitan	..	1 (?)	..	1	2
Deltocephalini (in part).	Cosmopolitan	Holarctic ?	..	?	?	?
Jassini	Cosmopolitan	..	..	..	..	1
Reuplemmellini	Australia	Australia	1	1	4	..
Trocnadini	Australia	Australia	..	1	2	..
Nirvanini	Trans-tropical	..	1	1	4	3
Penthimiinae (in part).	Cosmopolitan	..	1	1	4	..
Idiocerinae	Cosmopolitan	..	6	1	9	1
Typhlocybinae (in part).	Cosmopolitan	..	..	?	?	?
Cicadellini (in part)	Cosmopolitan	..	..	..	..	2
						Late Pleistoc-
Penthimiinae (in part)	Oriental, Africa, Australia.	?Oriental	2	1	4	2
Aphrodini	Cosmopolitan (except Australia).	..	1 (?)	..	1	..
Macroceratogoniini, Stenometopiini.	Oriental, Australia.	..	..	..	..	2
Coelidiinae	Cosmopolitan (except Australia).	..	..	..	..	1
Drabescinae	Africa, Oriental, Oceania.	..	..	..	..	2
Platymetopiini	Cosmopolitan (except Australia).	..	2	..	2	1
Selenocephalini	Cosmopolitan	..	..	..	..	1
Cicadellini (in part)	Cosmopolitan	..	..	..	..	1
Euacanthellini	N.S.W., Tasmania, N.Z.	..	..	..	..	1

8	9	10	11	12
Comprised Endemic Species	Introduced Species	Distribution within Australia and New Zealand	Principal Food-Plants	Remarks
..	..	Widespread	Principally on eucalypts.	Of problematical origin.
1	2	Particularly Northern Australia, but not confined to Queensland.	Probably grasses	These groups are represented in Australia mostly either by endemic genera, or else by numerous widely distributed endemic species. Few, if any, are likely to be of Pre-Tertiary origin yet all will have been established in Australia since before the Pleistocene. It is possible that they gained access to the continent by means of island chains that are supposed to have existed at times during the Tertiary. Some also may have arrived by adventitious means.
?	?	..	..	
13++	..	Widespread	Acacia, and possibly other trees and shrubs.	
..	..	Widespread	Eucalypts	
..	..	Widespread	Eucalypts	
3	..	Widespread	..	
..	..	Widespread but particularly in lower rainfall areas.	..	
29++	1 (N.Z. introduced)	Widespread	Eucalypts +?	
?	?	..	..	
7	1	..	Rushes and various herbaceous plants.	

ene Incursion

15	..	Particularly N.E. Australia.	..	This section of the Penthimiinae comprises such genera as *Vulturnus* and *Neodartus*, which because of their restricted distribution within Australia and low degree of endemism are presumed to have gained access to the continent during the Pleistocene at the same time as the sparse representatives of the other groups listed.
..	..	Particularly N.E. Australia.	..	
2	..	Particularly N.E. Australia.	..	
3	..	Particularly N.E. Australia.	..	
2	..	Particularly N.E. Australia.	..	
1	..	Particularly N.E. Australia.	..	
1	..	Particularly N.E. Australia.	..	
3	1	Particularly N.E. Australia.	Grasses	
1 (Aust.) 1 (N.Z.)	..	N.S.W., Tasmania, N.Z.	Grasses, or rushes	Not of northern origin and possibly of considerably earlier derivation.

1	2	3	4	5	6	7
Group	Distribution	Possible Geographical Origin	Monotypic Endemic Genera	Other Endemic Genera	Total Endemic Species (in 4 and 5)	Non-Endemic Genera
						Groups of Recent
Deltocephalini (in part)	Cosmopolitan ..	..	?	?	?	?
Xestocephalinae	Cosmopolitan ..	..	1	..	1	1
Macrostelini	Cosmopolitan ..	..	1	..	1	2
Typhlocybinae (in part)	Cosmopolitan ..	..	..	?	?	?
						Possible Recent
Agalliinae	Cosmopolitan ..	..	..	..	..	1 (?)

8	9	10	11	12
Comprised Endemic Species	Introduced Species	Distribution within Australia and New Zealand	Principal Food-Plants	Remarks
Adventitious Origin				
?	?	..	Grasses	The insects in this category are presumed to be either of recent adventitious origin or else introduced since the days of white settlemente.
5++	..	..	Grasses	
?	?	..	Grasses	
?	?	..	Various trees, shrubs and herbaceous plants.	
Introduction				
..	1 (?)	..	..	

Distribution

Leafhoppers have not been extensively collected in Australia hence distribution records of nearly every known species are scanty. Records of food-plant associations are even scantier and this is unfortunate since doubtless the distribution of many leafhoppers is determined by that of their food-plants.

While plant distribution may be the most important factor determining the distribution of many leafhoppers, the occurrence of particular environments will be another, and the distribution of some species may be limited by a single factor of the physical environment, of which temperature is doubtless the most important.

If the Eurymelidae are selected for discussion the following diverse patterns of distribution may be observed: widespread species, occurring in every State and every latitude (*Eurymeloides pulchra*, *Anacornutipo lignosa*); species confined to a particular latitude in both eastern and western Australia (*Cornutipoides tricornis*); species pairs, in which one of a pair occurs in eastern and one in western Australia (*Malipo* spp.); species confined to a particular climatic zone in eastern, or, western Australia (*Eurymelella tonnoiri* (Mt Kosciusko), *Ipo pellucida* (Queensland and Northern Territory) *Eurymeloides walkeri* (south-western Australia)].

While the present distribution of most species of eurymelids is doubtless associated with prevailing climatic conditions, the distribution of a few will have been influenced by former climates. Thus, for example, *Pogonoscopus myrmex* was evidently able to extend its range to eastern Australia, from a western Australian source, at a time when favourable climatic conditions would have permitted this to happen.

Evolution

It would seem that both the Cicadelloidea and Cercopoidea have been in existence as distinctive groups of insects for a period of some two hundred million years.

During this long time representatives of both groups have changed from gymnosperm to almost exclusively angiosperm feeders. They have, as well, experienced great climatic changes and periods of population isolation have alternated with periods of population interchange.

Because of these happenings, it is, in most instances, very difficult to establish evolutionary sequences and inter-relationships. Nevertheless, such sequences can sometimes be recognized, particularly among the various components of some endemic groups, such as the Eurymelidae, and these are discussed in the appropriate sections.

In general, a tribe represents a discontinuous group which has known or supposed affinities with another group. Thus, the Cephalelini are known to be related to, and in fact, to be derived from the Ulopini, while the Trocnadini and Reuplemmelini have been similarly derived from the Jassini.

A sub-family, on the other hand, is usually a discontinuous group of unknown derivation, though sometimes its affinities may be surmised. Thus, while the relationship of the Cicadellinae with other sub-families of the Cicadellidae is unknown, it is very probable that the Ledrinae have been directly derived from the Ulopinae (Evans, 1959).

Many authors, including the present writer, have published hypothetical phylogenetic trees, which express views on the inter-relationship of the several sub-families of the Cicadelloidea. However, because of the factors mentioned at the beginning of this section, it is clearly impossible to construct such a tree with any real confidence. This is because sufficient evidence to enable the true position of the greater number of the branches is, and probably always will be, lacking.

Although it is seldom possible to establish certain relationships between diverse groups of leafhoppers and froghoppers, many evolutionary trends of a varied nature can be recognized; some of these affect structural characteristics and others coloration. While some observed evolutionary developments are seemingly of adaptive significance, others apparently lack such an association.

Examples of those in the former category are provided by changes in the position of the ocelli and the reduction of the number of veins which support the apex of the forewings. The primitive position of the ocelli in the Cicadelloidea is on the ventral face of the head and such a condition is to be found in the Macropsinae, Jassini, Agalliinae and Idiocerinae. These groups of leafhoppers have no close affinity with each other, though formerly, because of this shared characteristic, they were regarded as belonging to a single sub-family. Ventrally placed ocelli are also of universal occurrence in the Eurymelidae.

There are many more groups of leafhoppers, however, which have either marginal ocelli, or else ocelli situated on the crown of the head and these conditions are undoubtedly secondary developments. In the Cercopoidea the ocelli are invariably dorsal in position. The fact that changes in ocelli position are always in the one direction suggests that it is advantageous for the ocelli to be in an exposed position, hence, that this is a character of selective value.

The majority of known late Palaeozoic and early Mesozoic Homoptera had forewings in which 7 veins supported the apex of the wing (Fig. 7). Most representatives of present day cicadelloids and cercopoids have 4 veins which serve the same function. Because of the frequency of the occurrence of this latter number, and also because of the fact that vein reduction has been achieved in several different ways, it is possible that this venational feature is, like ocelli position, the result of selection.

The bizarre pronota of membracids have frequently been discussed from the point of view of their evolutionary significance. While in some instances the pattern of pronotal development is seemingly mimetic, more often this is not the case and it is difficult to understand how some of the many and varied shapes can be of adaptive importance.

Other observed evolutionary trends in leafhoppers have to do with increases in size, such as are discernible, for example, in the Eurymelini, and in colour pattern development. The most generalized cicadelloids and cercopoids are either brown, or black, in colour, while green has been acquired secondarily, and independently, in many groups. The adaptive significance of these colours can be readily appreciated. It is, however, not so easy to understand how any benefit can be conferred by the possession of vivid and very varied colour pattern combinations, particularly when, in some species, the range of variation is so considerable that insects in nearly every population differ in colour from those in others.

Abundance

Populations of both leafhoppers and froghoppers are usually maintained by their natural enemies at a low level of abundance. These have been very little studied and although eggs are known to be extensively parasitized by myrmarids (Hymenoptera) and nymphs and adults by dryinids (Hymenoptera) there are certainly other groups of Hymenoptera and, as well, certain Diptera and Lepidoptera, which play a significant part in population regulation.

It is interesting to conjecture how the population balance of these insects was maintained during late Palaeozoic and early Mesozoic times when, presumably, there were no parasitic Hymenoptera, nor parasitic or predatory, Diptera or Lepidoptera.

Possibly Mecoptera, which would then have existed in far greater abundance than they do at the present time, played a significant role.

The frequency with which fossil Homoptera are found suggests, in any case, that these insects were formerly far more abundant than they are in most environments at the present time.

Economic Significance

Apart from a few typhlocybids, not a single undoubted endemic cicadelloid, and no cercopoids, have been recorded as serious pests in either Australia or New Zealand. Such few species as are of some economic significance are of uncertain origin and are regarded as injurious on account of being virus vectors. One of the best known of these is *Orosius argentatus*, which is of widespread occurrence throughout Australia.

In comparison with other parts of the world the grasslands of Australia and New Zealand carry a very small leafhopper population and support even fewer cercopoids. Consequently, with the possible exception of grasslands in northern Australia, these insects can have very little effect on pasture productivity.

Some Research Suggestions

The major obstacle hindering investigations with Australian insects of almost any sort is lack of background literature.

The present work, which is very far from a complete and well-rounded contribution to knowledge, might be compared with a distorted sieve which needs to be replaced by a symmetrical basin.

The fact that the sieve has shape provides a foundation of some sort for future work. The holes represent knowledge which is lacking; the distortion, the probability that errors occur in respect to some of the relationships suggested.

Almost any one of the several groups of insects described provides special problems and the few mentioned below are given as examples of possible research projects.

Eurymelidae—A study of the status, distribution and food-plant relationships of the several stable colour-forms of the *Eurymela distincta-fenestrata* complex.

Ulopinae—The factors associated with dimorphism.

[redacted]

factors.

Cicadellinae—The status, distribution, food-plants and time of specific differentiation of *Kolla* spp.

Macropsinae—Factors associated with speciation.

Australoagalloidinae—Distribution; correlation of the sexes; relationships.

Typhlocybinae—A study of the fauna as a whole.

Tartessinae—Systematic and biological study.

Collecting Methods and Collections

In a well-known textbook of entomology (Imms, 1957), it is stated that leafhoppers are "probably the most abundant of all Homoptera, and may readily be collected by sweeping grass, herbage and other foliage".

As has already been mentioned, in southern Australia and in New Zealand, leafhoppers, and, likewise, froghoppers are not usually abundant on grasses. Furthermore, most forms which occur on them are introduced.

Although grasses are seldom productive, "rushes" and herbage generally, growing in moist situations, sometimes yield leafhoppers.

By far the greatest number of Australian and New Zealand cicadelloids and Australian cercopoids live on trees and shrubs and may be obtained by beating. The occurrence of eurymelids on trees is always accompanied by the presence of ants which are more readily noticed than the leafhoppers. Some leafhoppers live on the trunks of eucalypts and may be found concealed under the bark. The best collecting is often obtained on isolated trees, or shrubs, on which leafhoppers have been enabled to increase their numbers without interference from parasites.

While light-traps may be expected to yield an abundance of material, it is seldom representative of either the leafhopper, or froghopper, fauna of an area but is of a restricted nature. This does not mean that such a method of collecting should be neglected as sometimes it makes available insects which have never been taken by other means (e.g., *Inghamia dayi*). Groups which seem to be particularly attracted by light are the Deltocephalini, Balcluthini, Xestocephalinae, Jassinae, Typhlocybinae, and Machaerotinae.

Compared with many other groups of insects, leafhoppers and froghoppers have been neglected by Australian entomologists and the reason for this neglect may be largely due to identification difficulties.

Irrespective of the extent to which literature may be helpful as an aid to identification, there nearly always comes a time when reference needs to be made to a well-documented collection.

While considerable collections of Australian insects in these particular groups are to be found in many museums, both within Australia and overseas, none of them is particularly representative and the principal importance of many lies in their possession of type specimens.

Over a long period of years, and with the co-operation of other workers, the author has succeeded in assembling a collection of Australian cicadelloids and cercopoids which, though far from complete, is yet more comprehensive than any other at present in existence.

While this has been made primarily for personal research needs it has been made also on the assumption that the availability of a representative collection can be just as much a stimulus to further study of a group as the preparation of a written document. When this collection is no longer needed for personal research it will become the property of the Australian Museum.

PART II

SYSTEMATICS

Morphology

The account of certain aspects of the external morphology of cicadelloids and cercopoids which follows, and the accompanying illustrations, are intended to provide an interpretation of the descriptive terms used in the text. At the same time brief particulars are given of some of the characteristics in which the 2 super-families, and the 3 families of the Cicadelloidea, differ from each other, even although these are mentioned again, and in greater detail, in appropriate sections.

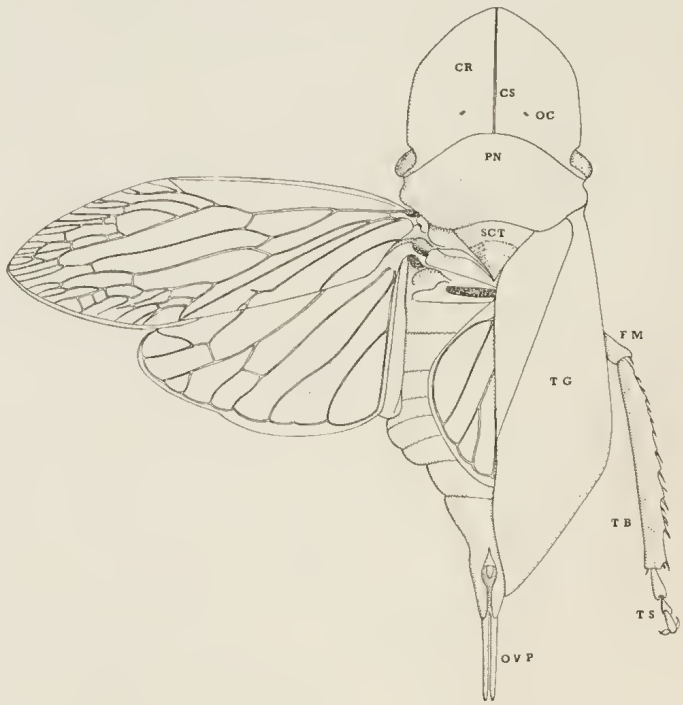

Fig. 2: *Ledromorpha planirostris*, CR, crown; CS, coronal suture; OC, ocellus; OVP, ovipositor; PN, pronotum; SCT, scutellum; TB, tibia; TG, tegmen; TS, tarsus.

The insect illustrated in Figure 2 (*Ledromorpha planirostris*) is the largest Australian leafhopper. The part of the head which is visible in dorsal aspect is known as the *crown*. This term has no morphological significance. Both leafhoppers and froghoppers have 2 ocelli. These may be on the crown, as in *L. planirostris*, or ventrally or, marginally situated.

The tergum of the first thoracic segment is known as the *pronotum*, and it overlaps the greater part of the tergum of the second, or, mesothoracic segment. The only part of the latter which is exposed consists of part of the scutum and the whole of the scutellum, which are separated from each other by a well, or, an ill-defined transverse fold. For descriptive purposes, the whole of the exposed mesnotum is known as the *scutellum*.

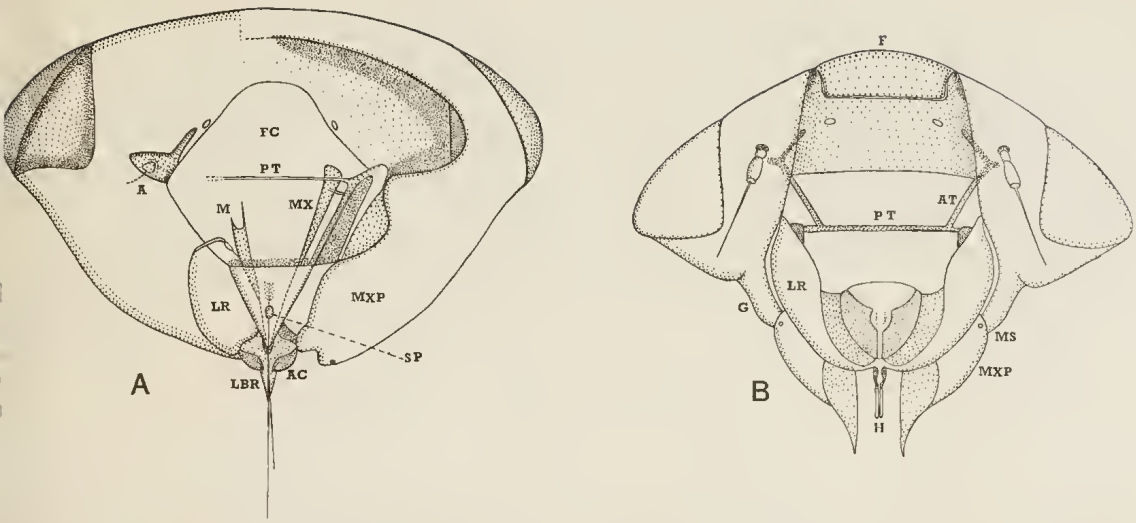

Fig. 3: A, *Eurymela fenestrata* (Eurymelidae), internal view of head. B, *Aufidus trifasciatus* (Cercopidae), anterior view of head after removal of the ante- and post-clypeus. A, antenna; AC, ante-clypeus; AT, anterior arm of tentorium; F, frons; FC, fronto-clypeus; G, gena; H, hypopharynx; LBR, labrum; LR, lorum; M, mandible; MS, maxillary suture; MX, maxilla; MXP, maxillary plate; PT, posterior tentorial bar; SP, salivary pump.

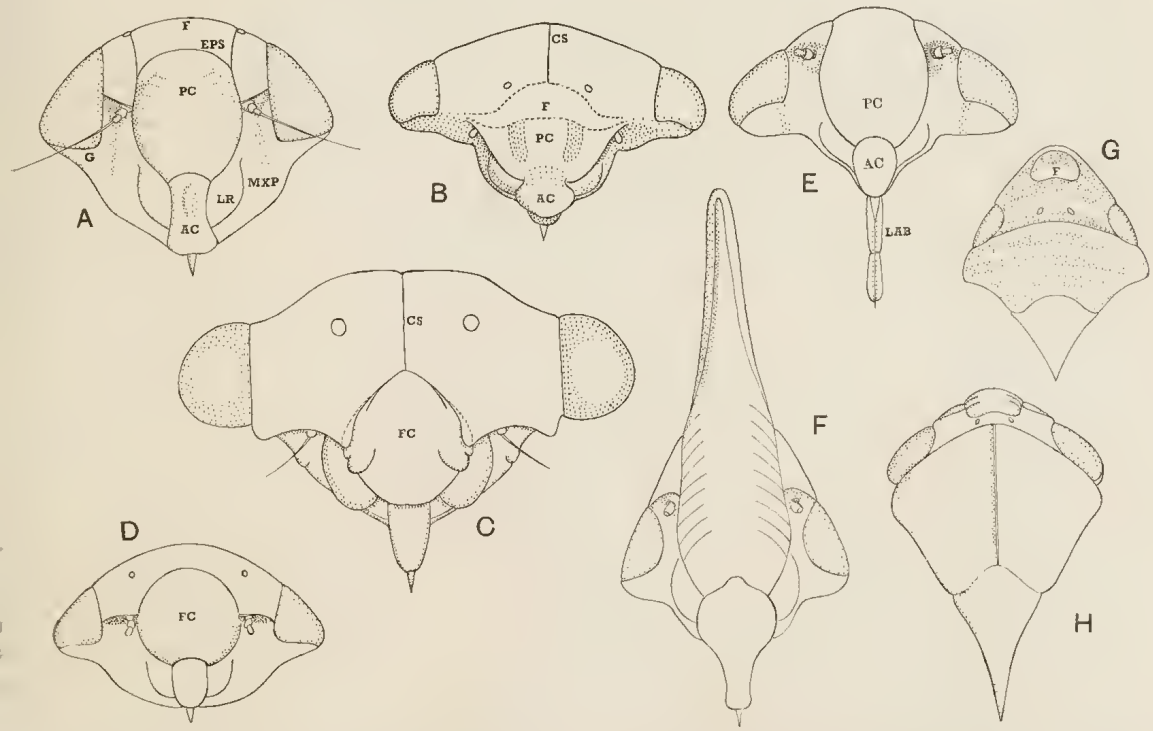

Fig. 4—Face of head: A, *Tartessus flavipes* (Cicadellidae); B, *Stenoscopus drummondi* (Cicadellidae); C, *Sextius virescens* (Membracidae); D, *Batrachomorphus elegans* (Cicadellidae); E, *Chaetophyes compacta* (Machaerotidae); F, *Philagra parva* (Aphrophoridae). Crown of head and thorax: G, *Clovia loxasema* (Aphrophoridae); H, *Pectinariophyes stalii* (Machaerotidae); AC, ante-clypeus; CS, coronal suture; EPS, epistomal suture; F, frons; G, gena; LAB, labium; LR, lorum; MXP, maxillary plate; PC, post-clypeus.

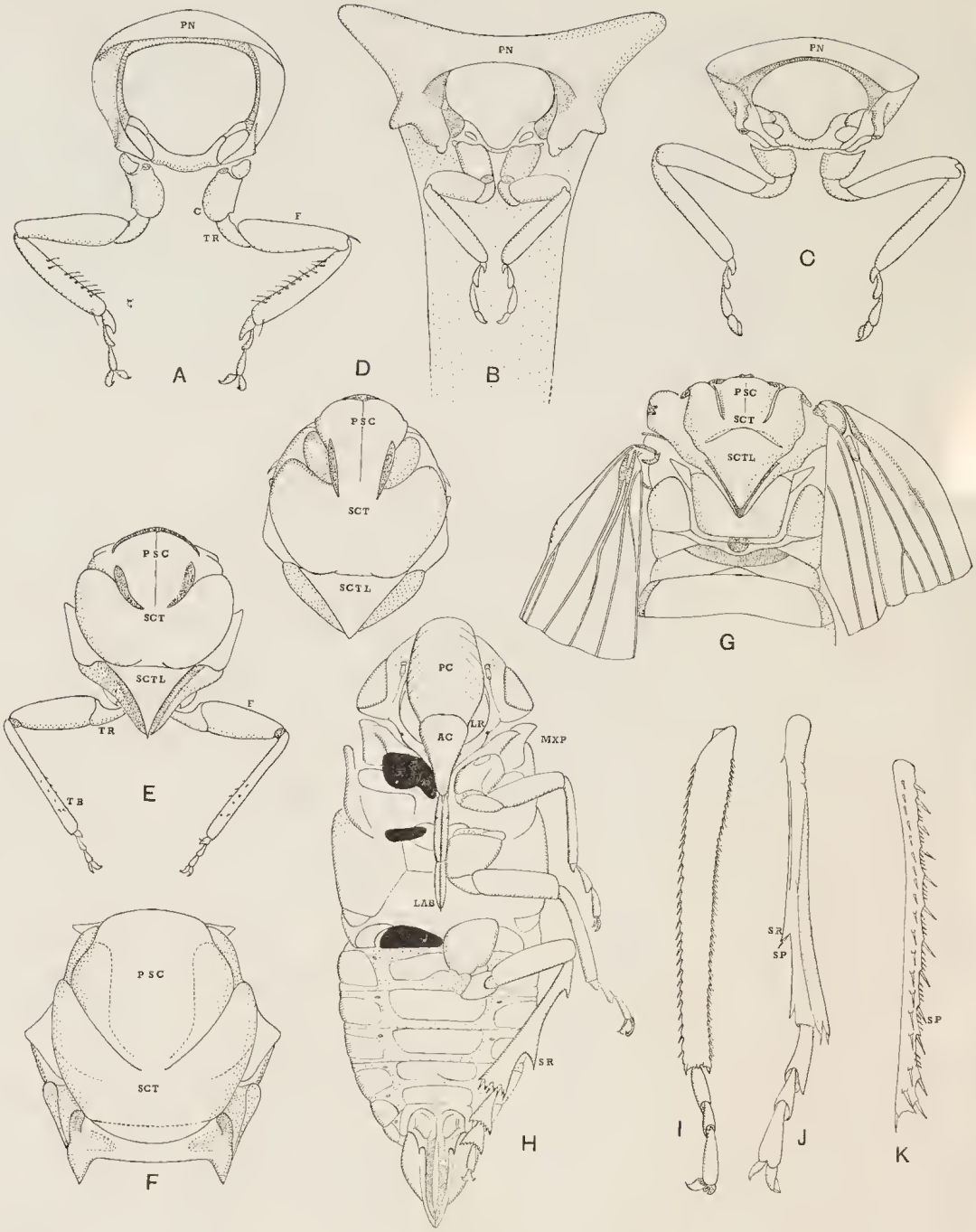

Fig. 5: A, *Tartessus flavipes* (Cicadellidae), prothorax, anterior aspect; B, *Sertorius australis* (Membracidae), prothorax anterior aspect; C, *Eoscarta carnifex* (Cercopidae), prothorax, anterior aspect; D, *Macropsis tasmaniensis* (Cicadellidae), mesothorax, dorsal aspect; E, *Tartessus flavipes*, mesothorax, dorsal aspect; F, *Eufairmairia acanthaspis* (Membracidae), mesothorax; G, *Esocarta carnifex*, meso- and metathorax, dorsal aspect; H, *Eoptyelus australis*, ventral aspect; I, *Sextius virescens* (Membracidae), hind tibia and tarsus; J, *Eurymela bakeri* (Eurymelidae), hind tibia and tarsus; K, *Tartessus pulchellus* (Cicadellidae), hind tibia. AC, ante-clypeus; C, coxa; LAB, labium; LR, lorum; PC, post-clypeus; PN, pronotum; PSC, post-scutellum; SCT, scutum; SCTL, scutellum; SP, spine; SR, spur; TR, trochanter; TB, tibia.

In Figure 3,A which represents the head of a eurymelid viewed from behind, the maxillary plate and the infolded hind border of the head are lacking on the left-hand side.

In Figure 3,B which is of a head of a cercopoid viewed from in front, both the ante-clypeus and the post-clypeus have been detached.

These illustrations serve to show the association of the mandibular stylet with the mandibular plate or *lorum* and the maxillary stylet with the *maxillary plate.* They also show how the lora are continuous medially, underneath the ante-clypeus, with the ventral surface of the sucking pump, and how the maxillary plates may be separated from the *genae* by a transverse suture. Attention is drawn to the lack of contact between the anterior arms of the tentorium and the posterior tentorial bar in the head of the cicadelloid and the presence of a complete tentorium in the cercopoid head.

The several parts of the heads of leafhoppers and froghoppers which are referred to in descriptions are appropriately labelled in Figure 4.

The central sclerite of the head of a leafhopper usually consists of the post-clypeus together with the "frons", and is known as the *fronto-clypeus* (Figure 4, D.). Sometimes, however, the frons is separated from the post-clypeus by a well, or more usually an obscure, transverse suture, the epistomal suture (Figures. 4, A, B).

In Figure 5 some of the structural features of the thorax, and its appendages, of various cicadellids, membracids, eurymelids and cercopids are illustrated.

In order to interpret relationships, some understanding of wing venation is essential. The forewings, or tegmina, of a eurymelid, cicadellid, membracid and cercopoid, together with 2 hind wings, are illustrated in Figure 6. These should be studied in conjunction with the 2 wings shown in Figure 7, which illustrate the venation of the tegmen and the hind-wing of the forerunners of present-day leafhoppers. These lived during the Permian geological period.

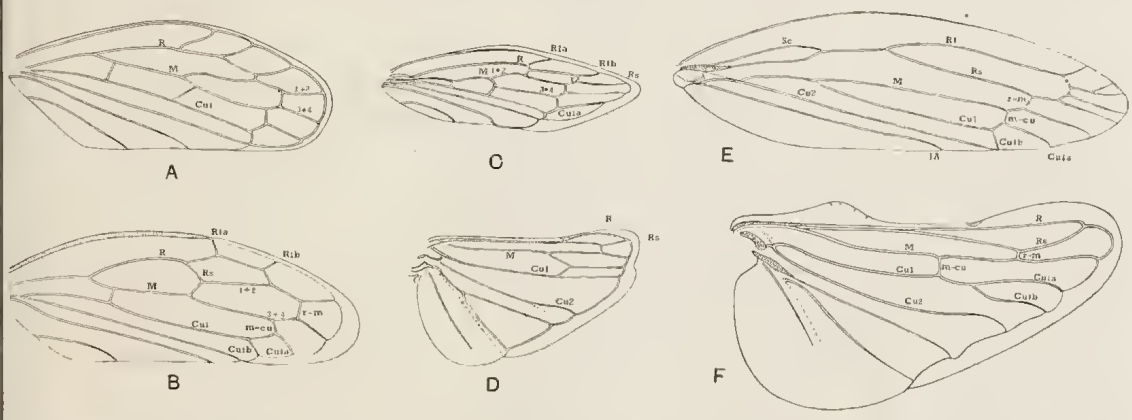

Fig. 6: A, *Ipo pellucida* (Eurymelidae), tegmen; B, *Kahavalu gemma* (Cicadellidae), tegmen; C, *Eufrenchia alcata* (Membracidae), tegmen; D, *Eurymeloides punctata* (Eurymelidae), wing; E, *Eoptyelus australis* (Aphrophoridae), tegmen; F, *E. ptyelus*, wing.

It will be seen that while in late Palaeozoic times the fore and hind wings of cicadelloids differed from each other in shape that their venation was then identical.

Attention is drawn to the following features of the tegmina of cicadelloids and cercopoids. The radius (R) originally had 3 branches (R1a, R1b, Rs) and the median vein (M) had 4 branches. In the Eurymelidae (Figure 6,A) R has been modified by specialization; the radial sector, Rs, is lacking and M has 2 branches (M 1+2 and M 3+4).

In the Cicadellidae (Figure 6, B) and likewise in the Membracidae (Figure 6,C), R1 retains its original condition, while Rs is apically incorporated in the same vein as M 1+2.

It will be noted that in one respect, the fossil tegmen of *Homaloscytina plana* (Figure 7,A) is more specialized than that of the present-day membracid illustrated (*Eufrenchia falcata*, Figure 6, C). This is because in the former, though not in the latter, R and M form a single vein proximally.

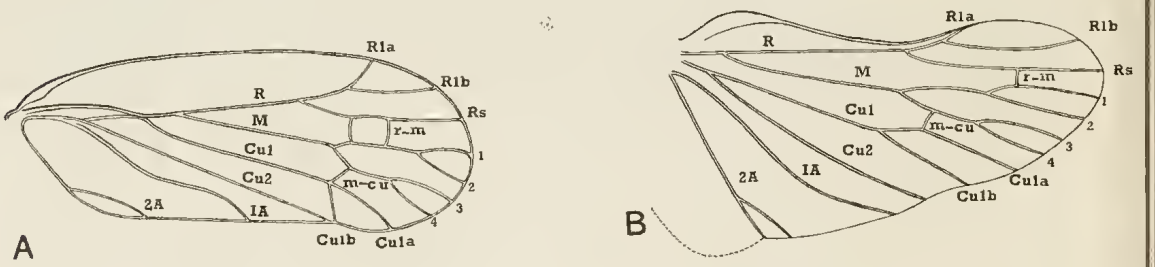

Fig. 7: A, *Homaloscytina plana* Tillyard, tegmen; B, *Prosbole ivagorae* Bekker-Migdisova, wing.

The tegmen of the cercopoid illustrated (*Eoptyelus australis*, Figure 6, E) differs from that of the 3 cicadelloids in the retention of the subcostal vein (Sc) proximally; in the apically multi-branched condition of R1; in the reduction of M to a single vein and in having M basally incorporated in the same vein as the first cubitus (Cu1). The last-named feature, though of frequent occurrence within the Cercopoidea, is not universal, since M and Cu 1 may be separate, although joined by a basal cross-vein. However, unlike the condition which occurs in the majority of the Cicadelloidea, in the Cercopoidea, M is never proximally fused with R.

The hind wings of both the Cicadelloidea and the Cercopoidea are considerably more modified from the ancestral condition than the tegmina. Moreover, although there are superficial differences between the venations of representatives of the various families of the Cicadelloidea and between these and those of the Cercopoidea, close analysis discloses that the differences have no basic significance.

The several structures of the male genitalia of cicadelloids and cercopoids are illustrated in Figure 8.

The whole of the genitalia are associated with the 9th abdominal segment of which the sternum is usually, though not invariably, distinct.

Ventrally there are a pair of processes, the *subgenital plates*, which are usually entirely separate, but may be medially fused (Figure 8, E). These enclose a pair of claspers, or *parameres*, which lie alongside and are attached to a central connective, or *basal plate* (Figure 8, H), from which, except in the Eurymelidae (Figure 8, B) the intromittent organ, or *aedeagus*, arises. Sometimes the aedeagus is protected laterally by extensions of the tergite of the 9th segment, which is known as the *pygophore*.

Examination of the male genitalia is frequently necessary for purposes of identification. The genitalia, after removal from an insect, need to be treated in a 10 per cent solution of caustic potash, cleaned, dehydrated and cleared. Then, for permanent reference purposes they can be mounted in Canada balsam on a perforated card, backed by a piece of cover slip, and kept on the same pin as the insect from which they were removed.

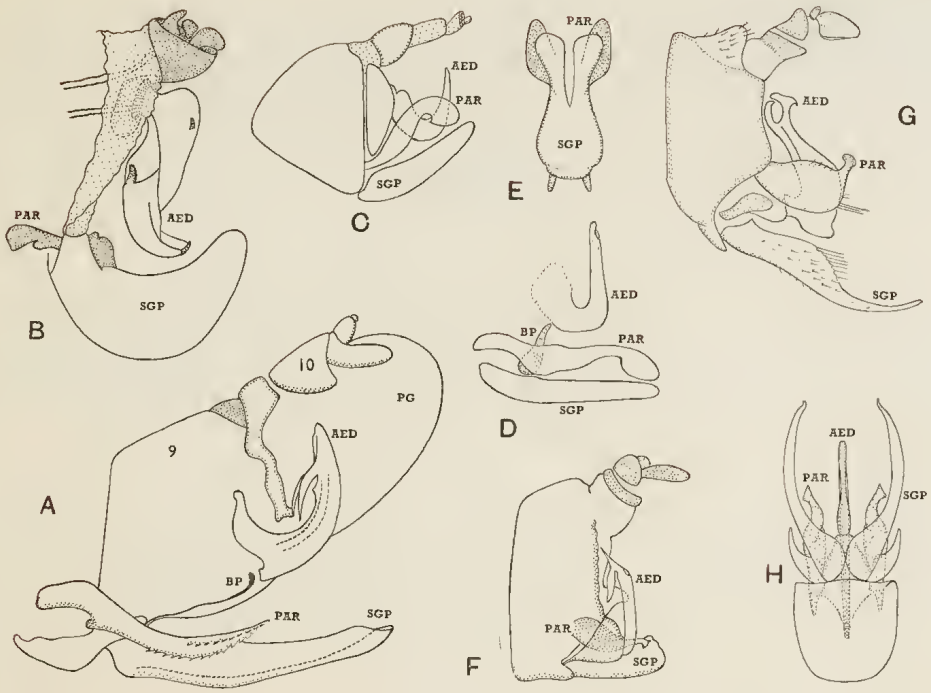

Fig. 8—Male genitalia: A, *Austragalloides rosea* (Cicadellidae); B, *Eurymeloides punctata* (Eurymelidae); C, *Lubra spinicornis* (Membracidae); D, *Sextius virescens* (Membracidae); E, *Alosextius carinatus* (Membracidae); F, *Megastethodon urvillei* (Cercopidae); G, *Tonnoiria tasmaniana*, (Cercopidae); H, *Eoscarta carnifex* (Cercopidae); AED, aedeagus; BP, basal plate; PAR, paramere; SGP, subgenital plate.

Characters Distinguishing the Cicadelloidea and Cercopoidea

The Cicadelloidea, or Jassoidea, are a large and diverse assemblage of insects. Although in size, shape and coloration, many superficially resemble Cercopoidea there are several constant characteristics in which the 2 groups differ from each other. These suggest that they have followed separate lines of evolutionary development for a very considerable period. Fossil evidence supports this assumption since forewings which have been ascribed to both super-families have been recorded from strata of Permian age (Evans, 1964).

The following are among the more important features separating the two groups:—

Cercopoidea

In the *head* (Figure 3,B) anterior tentorial arms are present. These arise from near the antennae on each side and extend to, and join, the posterior tentorial bridge.

In the *tegmen* (Figure 6,E) the subcostal vein is always present, though sometimes obscure and it lies well away from the costal margin of the tegmen. A radial sector is likewise always present (except in those forms in which the tegmina are elytra-like) and the median vein which is never, in part, associated with the radial sector, is usually incorporated basally in the same vein as the first cubitus.

In the *hindwing* (Figure 6,F) the first cubitus divides into Cula and Culb distally of the cross-vein which links it with the media.

The hind *tibiae* (Figure 5,H) which are cylindrical, bear one or two strong spurs and lack spines.

The *nymphs* live immersed in froth, or in liquid contained in calcareous tubes of their own making, and have an open or closed ventral abdominal air canal.

Cicadelloidea

In the *head* (Figure 3,A) the anterior tentorial arms are not associated with the posterior tentorial bar.

In the *tegmen* (Figure 6,B) a subcostal vein is not present as a separate vein except in certain South American representatives of the Family Aetalionidae. A radial sector may be present, or absent, and when present is incorporated in the same vein as the anterior branch of the media. The media except in those forms in which the venation is secondarily reduced, has always, at least, 2 branches. Basally, it is usually incorporated in the same vein as the radius, but it may have a separate origin and, exceptionally, be basally fused with the first cubitus.

In the *hindwing* (Figure 6,D) the first cubitus divides into Cula and Culb proximally of a cross-vein (which may represent a branch of M) which links it with the media.

The *hind tibiae* (Figure 5, I, J, K) almost invariably bear spines and, when in addition spurs are present, they consist of the enlarged bases of spines.

The *nymphs* occupy the same environment as the adult insects and usually lack specialized structural features of an adaptive nature.

The Families of the Cicadelloidea

The Cicadelloidea may be separated into 7 primary divisions as follows: Nicomiidae, Biturritidae, Actalionidae, Membracidae, Hylicidae, Eurymelidae and Cicadellidae (Evans, 1946, a, 1948). The three first named, and the Hylicidae, which are relict groups, are not represented in the Australian region. The remaining families may be distinguished from each other by the following features:—

1. Pronotum always considerably enlarged, sometimes grotesque ..... **Membracidae**

   Pronotum almost invariably of normal proportions, but if considerably enlarged then directed anteriorly and the scutellum completely exposed 2

2. Ocelli on the ventral surface of the head; tegmen with vein M 1 + 2 extending to the apex independently of Rs; hind tibia, except in myrmecophiles, with one or more spines mounted on prominent bases ..... **Eurymelidae**

   Leafhoppers lacking the above combination of characters ..... **Cicadellidae**

Classification

The system of classification adopted in this work conforms to a great extent, with one proposed previously (Evans, 1946, b, 1947, a). In the period which has elapsed since this system was proposed it has been adopted, in part, but by no means in its entirety, by other authors. Thus Linnavuori (1959) for example, is of the opinion that the Penthimiini and Selenocephalini, which I had regarded as components of the sub-family Jassinae, and the Hecalini, which I had considered as a tribe of the sub-family Hecalinae, are more correctly placed as tribes of the Deltocephalinae.

While in respect to the above groups, the associations suggested by Linnavuori may be correct, it is nevertheless possible that some, or all, of these groups may contain diverse components. In other words, while some "Penthimiini" may have affinity with the Jassini, others may be more closely related to the Deltocephalini and some may even be of altogether different derivation.

It is for this reason that some only of Linnavuori's amendments have been incorporated in the present work.

The Family Eurymelidae

The Eurymelidae is a family of leafhoppers which, apart from sparse representation in New Guinea and New Caledonia, is confined to Australia.

Biology

The insects range in length from 3-14 mm. They feed on the branches and, in some instances, the roots of trees and shrubs. The nymphs, and during some part of their lives the adults also, are gregarious, and both nymphs and adults are attended by ants. Eggs are laid in batches in parallel slits in twigs of their food plants and the "nests" are sealed with a secretion produced by the females. The nymphs of most species have their legs widely spread and do not jump if disturbed. (Evans, 1931.)

Characteristics

Eurymelids may be recognized immediately by the characteristic face of their heads (Figure 11, C1, 14, A). This is quite unlike those of most cicadellids, with the exception of a few species comprised in the sub-family Idiocerinae.

The pronotum is never enlarged. The mesonotum has paired median longitudinal unsclerotised areas and is apically acute.

The tegmina of those species which have simple, as apart from reticulate venation, have 3 distinguishing features. These are, that R1 has usually more than 2 branches; Rs would seem to be lacking and M 1 + 2 extends to the apex of the tegmen. Some cicadellids also have R1 with more than 2 branches and in a few groups Rs is lacking, but in none is M 1 + 2 more than a cross-vein basally, being distally incorporated in the same vein as Rs. A comparative study of Recent and fossil forms establishes that in the Cicadellidae, when additional branches of R1 and absence of Rs occurs, that these are secondary specializations, unlike in the Eurymelidae, where they represent a basic condition. By this it is meant that this feature will have occurred in the original stock from which the Eurymelidae have been derived.

The hind tibiae are quadrilateral in section, and have one, or a few, spines mounted on prominent bases. They may, as well, have additional unmounted spines. In the male genitalia the aedeagus, which has a large basal apodeme, is situated dorsally just below the anal segment and lacks any association with the basal connective that lies between the paired parameres.

Status and Origin

Some authors (e.g., Ross, 1957) have been unwilling to grant family status to this group of insects and have associated it with forms, in particular leafhoppers comprised in the cicadellid subfamily, the Idiocerinae, with which it almost certainly lacks close affinity. It would seem, however, that as the Eurymelidae have such distinctive features, they merit complete separation

from any of the other family groups comprised in the Cicadelloidea. Once, however, family status is claimed, it becomes necessary to try and explain the problem involved in the present restricted distribution of the comprised insects. This is because, apart from 2 relict families which occur in the Neotropical region, no other family of leafhoppers is so restricted and family status would seem to imply a Mesozoic period of initial differentiation.

A Mesozoic origin is supported also by the discovery in Upper Triassic strata in Queensland of a fossil wing which is seemingly that of a eurymelid (Evans, 1956).

When part of a population is isolated geographically it sometimes happens that rapid evolutionary development follows, and such an occurrence may be the explanation for the extensive radiation of the Eurymelidae which took place in Australia during Tertiary times.

This hypothesis, however, leaves unexplained the absence of eurymelids from other parts of the world.

The family Aetalionidae has 3 genera, of which two, *Aetalion* Latreille and *Schiza* Laporte, have representatives only in the Neotropical region, while the third genus *Darthula* Kirkaldy, which is monotypic, occurs in the Oriental region. This family, which is a relict one of undoubted Mesozoic origin, must formerly have been widespread. Its present restricted distribution can be due only to the fact that its representatives have failed to survive over the greater part of their former range. Such an explanation, with respect to the Eurymelidae, might be the reason for their present limited distribution, even although the Aetalionidae, unlike the Eurymelidae, did not, to the same extent, acquire an evolutionary stimulus following isolation during the Tertiary.

The Eurymelidae, furthermore, are in no sense a relict family since not only are they the dominant leafhoppers in Australia but ecologically they are particularly well adapted to the present-day Australian environment.

Following an initial evolutionary stimulus resulting from early Tertiary isolation they may have received an additional one, when, during the latter part of the Tertiary a period of abundant rainfall conditions was replaced by the present arid cycle. This is because the greater number of eurymelids feeds on eucalypts and the evolutionary radiation of these trees is apparently linked with the same climatic change.

The Eurymelidae are of particular interest from the point of view of a comparative study of differing levels of evolutionary development. These various levels range from unstable local populations to tribal or sub-family groupings and are as follows:—

(a) Local populations of a species lacking a stable colour pattern. Insects in one population may differ from those in others, not only in colour pattern but also in minor differences in the shape of the various parts of the male genitalia.... (Examples among **Ipoella** spp.)

(b) Populations of species (which may be polymorphic) that differ from other populations in having constant, as apart from variable, colour pattern differences. They lack, so far as is known, differences in genitalia characteristics .... (Examples comprised in the **Eurymela fenestrata** complex)

(c) Populations at a specific level of differentiation, between which occur constant differences of size and colour pattern and in the shape of the aedeagus.. (Example **Eurymelops** spp.)

(d) Genera, between which there may be no greater differences than between many species but which have been accorded generic status because the passage of time has permitted secondary speciation to take place ..... (Examples, **Stenipo, Ipoides**)

(e) Genera which are regarded as such because the comprised monotypic species have developed some unusual structural feature..... (Examples, **Eurymelita, Cornutipo**)

While the special characteristics of the Eurymelidae as a whole seemingly justify the group being accorded family status, the 3 sub-families into which it has previously been divided (Evans, 1933) do not correspond in their degree of distinctiveness with those of the sub-families of the Cicadellidae. Consequently, they are here regarded as tribes. One of these tribes is differentiated by adaptive characters associated with a subterranean existence. The 2 others, though distinctive, are linked by forms which have the principal distinguishing features of each.

Food Plants

Most species of eurymelids feed on eucalypts, but the degree to which any may be restricted to particular species of these trees is unknown. A few have been recorded from *Loranthus* growing on eucalypts, some from *Casuarina* and a few from shrubs belonging to the family Proteaceae, but only one, and this may be an incorrect record from *Acacia*.

Distribution

Because of lack of knowledge of food plant relationships, it is not known to what extent the distribution of the various species of *Eucalyptus* determines the distribution of eurymelids. Many species have a very wide distribution, being found in every State. Others are limited to a restricted area (*see* p. 18).

None of the several species which have been recorded from New Guinea are distinctive and the single species recorded from New Caledonia is also closely related to a continental form. The myrmecophilous Pogonoscopini are particularly associated with south-western Australia but as already mentioned they have, at some comparatively recent period, been enabled to extend their range, since they now occur also in restricted areas in Central Australia, South Australia and north-eastern Victoria.

KEY TO TRIBES OF THE EURYMELIDAE

1. Head, including the eyes, wider than, or of equal width, with the hind margin of the pronotum; hind tibia with one or more prominent spurs bearing apical spines, with or without, additional spines. Living on trees and shrubs and ant-attended 2

   Head, including the eyes, narrower than the hind margin of the pronotum; hind tibia with approximately evenly distributed spines of equal length, 1 row of which is mounted on enlarged, but not on prominent, bases; tegmen brown, sometimes with pale markings. Living in ants' nests and feeding on the roots of eucalypts ..... **Pogonoscopini**

2. Tegmen either black with whitish, or, coloured fasciae, or blue, or red, separately, or combined; male genitalia with broad subgenital plates bearing ventral or dorsal accessory styles. Living solely on eucalypts ..... **Eurymelini**

   Tegmen colourless-hyaline, buff, brown, grey or pink, with, or without, darker or paler markings; male genitalia with narrow or broad sub-genital plates lacking accessory styles. Living on eucalypts, other trees and shrubs, and *Loranthus* ..... **Ipoini**.

Ipoini

The Ipoini comprise numerous genera containing small, somewhat drab-looking insects which superficially resemble cicadellids and which frequently can be distinguished from each other only by a critical examination of the male genitalia; also a few genera containing species with well defined characteristics.

Seventeen genera comprising 47 species are considered in the pages that follow. Many more await description; some because they are not represented in collections and others because, although known in collections, they are represented only by female specimens.

Particular use is made of tibial armature for diagnostic purposes and also the shape of the various parts of the male genitalia. The genitalia furnish a ready and certain means of generic and usually also of specific identification, even although, as already mentioned, populations occur comprising insects which display some degree of variability of aedeagus-shape.

KEY TO THE GENERA OF THE IPOINI

1. Fronto-clypeus flat or evenly convex 2
   Fronto-clypeus not as above 15

2. (1) Tegmina tectiform 3
   Tegmina not tectiform, overlapping apically ..... **Bakeriana** Evans

3. (2) Narrowly wedge-shaped insects 4
   Broadly wedge-shaped insects ..... **Ipo** Kirkaldy

4. (3) Hind tibiae with a single spur, *with, or without, additional spines 7
   Hind tibiae with 2 spurs 5

5. (4) Insects with a bold yellow and black tortoise-shell colour pattern .... **Opio** Evans
   Not as above 6

6. (5) Small pink and brown insects ..... **Katipo** Evans
   Large brown, grey, and white insects ..... **Malipo** gen. nov.

7. (4) Hind tibiae with numerous strong spines in addition to a single spur 8
   Hind tibiae with a few weak spines in addition to a single spur .. **Ipoella** Evans

8. (7) Insects less than 4 mm in length ..... **Ipelloides** gen. nov.
   Insects 4 mm or more in length 9

9. (8) Insects less than 7 mm in length 10
   Insects 7 mm or more in length ..... **Nanipoides** gen. nov.

10. (9) Crown of head of even, or almost even, length throughout 11
    Crown of head longer against the eyes than in the centre 12

11. (10) Tegmina apically narrow, appendix wide ..... **Stenipo** Evans
    Tegmen apically broad, evenly and profusely mottled with black and with a single anterior, more or less circular, white fascia ..... **Citripo** Evans

12. (10) Not eurymeline (i.e. predominantly black) in appearance 13
    Eurymeline in appearance ..... **Eurymelella** Evans

13. (12) Lora raised laterally above the level of the maxillary plates 14
    Lora on the same plane as the maxillary plates ..... **Aloipo** gen. nov.

14. (13) Ante-clypeus anteriorly depressed and apically up-turned ..... **Ipolo** gen. nov.
    Ante-clypeus anteriorly depressed and flat ..... **Ipoides** Evans

15. (1) Fronto-clypeus transversely ridged 16
    Face of head with 3 horns ..... **Cornutipoides** Evans

16. (15) Fronto-clypeus medially spatulate ..... **Cornutipo** Evans
    Fronto-clypeus with an anterior lip-like ridge ..... **Anacornutipo** Evans

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* In counting tibial spurs, apical ones are omitted.

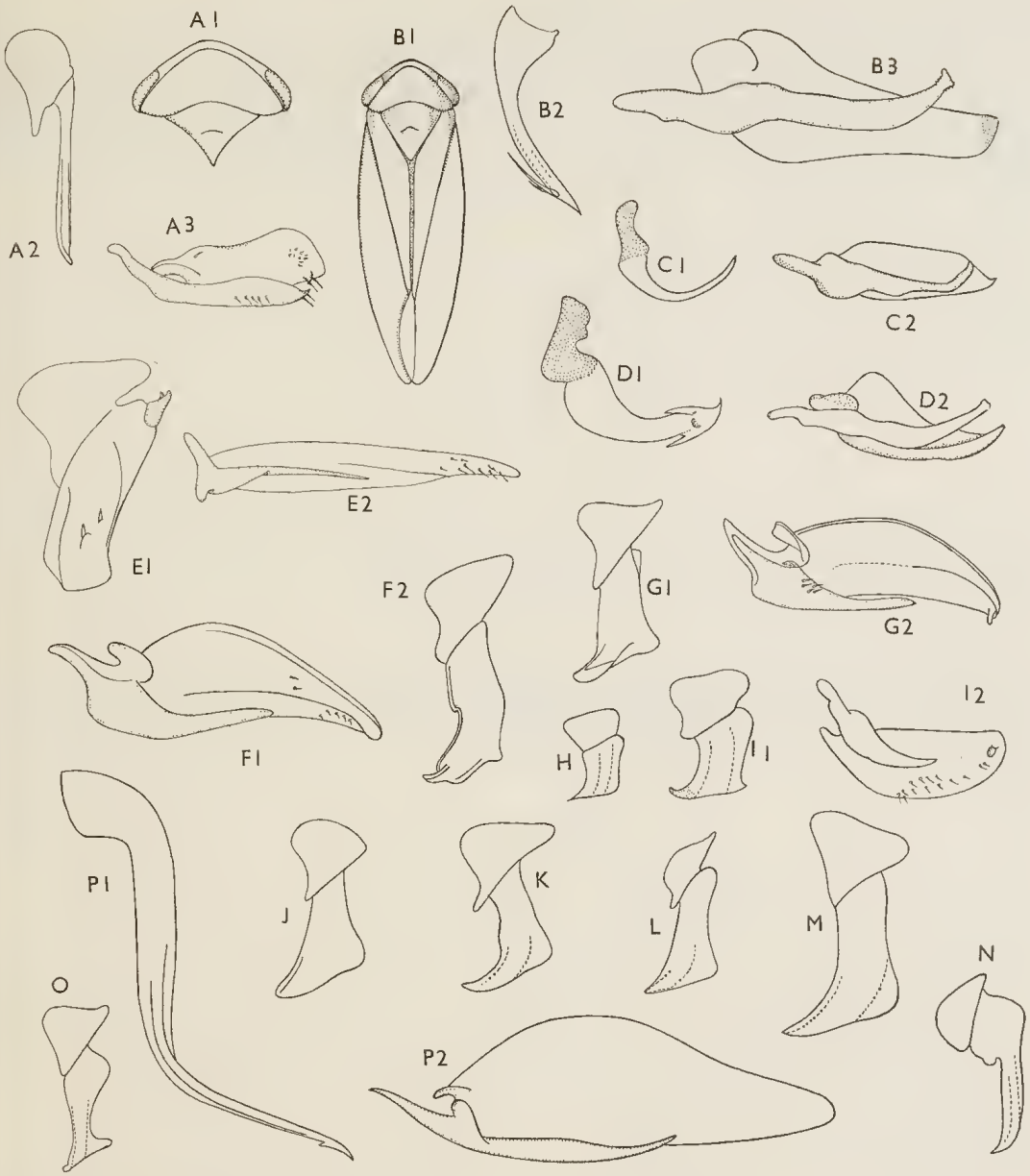


Fig. 9: A1, *Ipelloides macleayi*, head and thorax; A2, *I. macleayi*, aedeagus; A3, *I. macleayi*, subgenital plate and paramere; B1, *Bakeriana procurrens;* B2, *B. procurrens*, aedeagus; B3, *B. procurrens*, subgenital plate and paramere; C1, *Bakeriana obscura*, aedeagus; C2, *B. obscura*, subgenital plate and paramere; D1, *Bakeriana nigra*, aedeagus; D2, *B. nigra*, subgenital plate and paramere; E1, *Aloipo ooldeae*, aedeagus; E2, *A. ooldeae* subgenital plate and paramere; F1, *Ipoides honiala*, subgenital plate and paramere; F2, *I. honiala*, aedeagus; G1, *Ipoides hackeri*, aedeagus; G2, *I. hackeri*, subgenital plate and paramere; H, *Ipoides translucens*, aedeagus; I1, *Ipoides melaleucae*, aedeagus; I2, *I. melaleucae*, subgenital plate and paramere; J, *Ipoides minor*, aedeagus; K, *Ipoides laeta*, aedeagus; L, *Ipoides loranthae*, aedeagus; M, *Ipoides brunomaculata*, aedeagus; N, *Ipoides leai*, aedeagus; O, *Ipolo davisi*, aedeagus; P1, *Citripo flandersi*, aedeagus; P2, *C. flandersi*, subgenital plate and paramere.

Ipelloides gen. nov.

On the face of the head the labium extends to between the hind coxae, the genae are marginally sinuate and antennal ledges are lacking. The crown of the head, which is wider against the eyes than in the centre, is considerably anteriorly produced and the pronotum is slightly declivous. The hind tibiae have 1 spur and numerous short hairs, but lack additional spines. In the male genitalia the subgenital plates are approximately parallel-sided and the parameres extend almost as far as the apices of the sub-genital plates.

Type species—*Ipelloides macleayi* sp. nov.

Ipelloides, which superficially resembles *Macropsis* Lewis (Macropsinae, Cicadellidae) resembles *Ipoella* Evans in the character of tibial armature, but differs in those furnished by the male genitalia.

Ipelloides macleayi sp. nov.

(Fig. 9, A1, A2, A3)

Length, ♂, 3.2, ♀, 3.4 mm. Face yellowish-buff with pinkish markings, except for the lora and maxillary plates, which are whitish. Crown, pronotum and scutellum evenly buff. Pronotum punctate. Tegmen punctate, sometimes with dark brown markings; costal area and apex, whitish hyaline. Thorax and abdomen, ventral surface, yellowish-buff. Male genitalia as in Figure 9, A2, A3.

Holotype ♂ and *Allotype* ♀ from "South Australia" in the Australian Museum. *I. macleayi*, which is the smallest known eurymelid, differs from most representatives of the *Ipoini* in having a small accessory clasping process on the ventral margin of the sub-genital plate but this process is not in the nature of a style.

Bakeriana Evans

Ipocerus Evans, 1934, Trans.Roy.Soc.S.Aust.58:165 (preoccupied).

Bakeriola Evans, 1938, Pap.Roy.Soc.Tasm.1938:17 (preoccupied).

Bakeriana Evans, 1953, Mem.Inst.Sci.Madagascar E.4:129.

The labium is long and terminates between the hind coxae. The crown of the head is only slightly wider against the eyes than in the centre. The tegmina, which are long and narrow with a wide appendix, overlap apically and are not tectiform. The hind tibiae have 3 spurs and numerous strong spines.

Type species—*Ipo procurrens* Jacobi.

Bakeriana procurrens (Jacobi)

(Fig. 9, B1, B2, B3)

Ipo procurrens Jacobi, 1909, Faun. S.W. Aust., Michaelsen u. Hartmeyer 2:340.

Ipocerus procurrens (Jacobi), Evans, 1934, Trans.Roy.Soc.S.Aust. 58:165.

Length, ♂, ♀, 4.8-5.8 mm. Head grey, or cream, mottled with brown or black. Pronotum grey mottled with brown. Scutellum dark brown with yellowish markings. Tegmen pale, or dark brown, with oval, round, and irregularly-shaped hyaline areas. Male genitalia as in Fig. 9, B2, B3.

As previously recorded, *B. procurrens*, unlike other eurymelids, is apparently not attended by ants and the nymphs are capable of jumping. (Evans, 1934.)

Type Location—Paratype in Zoological Museum, Hamburg (Type destroyed).

Type Locality—Boyanup, Western Australia.

Known distribution elsewhere—Perth, Carlisle (Western Australia).

Bakeriana rubra (Evans)

Bakeriola rubra Evans, 1947, Trans.Roy.Soc.S.Aust. 71:227.

Length, ♂, 4.8 mm. Face of head evenly convex, dark brown mottled with reddish-brown. Scutellum dark brown, mottled antero-medially with pale reddish-brown. Tegmen hyaline, dark and reddish-brown with oval white markings.

Type Location—British Museum.

Type Locality—Moolooka, Queensland.

Bakeriana nigra sp. nov.

(Fig. 9, D1, D2)

Length, ♂, 4.8 mm. Face of head brown, densely mottled with dark brown, except for the maxillary plates and lora which are grey mottled with brown. Crown of head, pronotum, scutellum and tegmen concolorous with the head. Tegmen mottled hyaline-brown with numerous irregular, and some oval, pale areas. A pale form is also known. Male genitalia as in Figure 9, D1, D2.

Holotype ♂, and *Allotype* ♀, from Innisfail, Queensland (coll. R. A. O'Brien, 10/58) in the Australian Museum.

B. nigra differs from the type species, *B. procurrens*, principally in the shape of the aedeagus.

Known distribution elsewhere—Cunnamulla (Queensland); Little Desert (Victoria); National Park (New South Wales).

Bakeriana obscura sp. nov.

(Fig. 9, C1, C2)

Length, ♂, 3.8 mm. Face of head mottled with pale and dark brown. Pronotum and scutellum concolorous with the head. Tegmen, including the veins, pale hyaline brown; claval margin dark brown. Male genitalia as in Fig. 9, C1, C2.

Holotype ♂ from Darwin, Northern Territory (coll. E. Reye 7/57) in the Australian Museum.

Aloipo gen. nov.

The labium terminates between the fore coxae; the ante-clypeus slopes steeply anteriorly; the fronto-clypeus is convex anteriorly and somewhat flattened posteriorly. The eyes are prominent and the pronotum declivous. The crown of the head is widest against the eyes. The tegmina are apically rounded with a well-developed appendix and the hind tibiae have 1 spur and a few weak spines. In the male genitalia, the sub-genital plates are

narrow, apically acute and spinous and the parameres, which are sword-shaped, are slightly more than half the length of the sub-genital plates. The aedeagus has a pair of strong posterior dorsal spines and a pair of small lateral ones.

Types species—*Ipoides ooldeae* Evans.

Aloipo differs from *Ipoides* in the shape of the various parts of the male genitalia and also in the shape of the face of the head.

Aloipo ooldeae (Evans) (comb. nov.)

(Fig. 9, E1, E2)

Ipoides ooldeae Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 156.

Length, ♂, 5·2-5·4 mm; ♀, 5·8-6 mm. Head entirely pale yellowish-brown with, or, without a few brown markings, or pale brown with an irregular pattern of dark brown and black. Pronotum and scutellum concolorous with the head. Tegmen pale colourless hyaline; veins pale brown with white bars, or tegmen profusely mottled with brown and veins dark brown. Male genitalia as in Fig. 9, E1, E2.

Type Location—South Australian Museum.

Type Locality—Ooldea, South Australia.

Known distribution elsewhere—Morven, Cunnamulla (Queensland); Frome Downs Station (South Australia); Woorinen (Victoria); Bogan River (New South Wales).

Collected on—Heterodendron oleifolium.

Ipoides Evans

Ipoides Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 155.

The labium terminates between the middle coxae, and the face of the head is evenly convex. The ante-clypeus is anteriorly depressed, and the lora slightly swollen laterally and the antennal ledges are not well developed. The crown is narrow and longest against the eyes and the pronotum slightly declivous. The tegmina are apically narrow and the appendices wide. The hind tibiae have 1 spur and several strong spines. In the male genitalia the subgenital plates are broad, narrowing apically, the parameres short and the aedeagus boot-shaped, sometimes with an anterior flange.

Type species—*Ipoides hackeri* Evans.

Ipoides hackeri Evans

(Fig. 9, G1, G2)

Ipoides hackeri Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 155.

Length ♂, 4·3-4·8 mm; ♀, 5 mm. Head with an irregular pattern of grey, pale yellow and dark brown. Pronotum and scutellum concolorous with the head. Tegmen hyaline; veins brown with white bars; a narrow anterior pale fascia sometimes present. Male genitalia as in Fig. 9, G1, G2.

Type Location—South Australian Museum.

Type Locality—Brisbane, Queensland.

Known distribution elsewhere—Caloundra, Gatton, Maryborough, Moolooka, Gympie, Deception River (Queensland); Wyndham (Western Australia); Hornsby (New South Wales).

Ipoides honiala (Kirkaldy) (comb. nov.)

(Fig. 9, F1, F2)

Ipo honiala Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 466.

Ipoides casurinae Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 157 (syn.nov.).

Ipoides fasciata Evans, 1942, Trans.Roy.Soc.W.Aust. 27. 144 (syn. nov.).

Previously (Evans, 1934) a description, accompanied by illustrations, has been given of a eurymelid incorrectly identified as *Ipo honiala*. Examination of the type of this species has disclosed the former error.

Length, ♂, 5, ♀, 5 mm. Face of head pale yellowish mottled with light and dark brown; maxillary plates and lora usually not mottled. Pronotum and scutellum concolorous with the head. Tegmen pale hyaline-brown with a characteristic complete, or broken, white fascia; veins brown barred with white. Male genitalia as in Figure 9, F1, F2. Sometimes an anterior ventral flange of variable extent is present on the aedeagus.

Type location—H.S.P.A., Honolulu.

Type Locality—Brisbane, Queensland.

Known distribution elsewhere—Canberra (A.C.T.); Kurnell (New South Wales); Merinee (Victoria); Swan River, Spargoville, Wyndham (Western Australia); Burleigh, Maryborough, Innisfail (Queensland).

Collected on—Casuarina.

Ipoides loranthae Evans

(Fig. 9, L)

Ipoides loranthae Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 48.

Length ♂, 4·2, ♀, 5 mm. Face of head mottled with dark brown and black; maxillary plates and post-clypeus laterally, usually pale yellowish, or, pale brown. Pronotum and scutellum concolorous with the head. Tegmen colourless hyaline, except for the clavus, which is dull brown with dull white oval markings, or uniform blackish-brown with oval whitish markings; veins pale, or very dark brown, with white bars. Male genitalia as in Figure 9, L.

Type Location—Australian Museum.

Type Locality—Carnamona Station, South Australia.

Known distribution elsewhere—Gunnedah (New South Wales); Cunnamulla (Queensland).

Collected on—Loranthus pendulus.

Ipoides laeta sp. nov.

(Fig. 9, K)

Length, ♂, 4·2 mm. Face of head, ante-clypeus and fronto-clypeus medially, and vertex, dull brown; remainder pale brown. Pronotum greyish-brown mottled with dark

brown. Scutellum black. Tegmen hyaline-brown with oval white hyaline markings of varying distribution. Male genitalia as in Figure 9, K.

Holotype ♂ from Perth, Western Australia, in the Australian Museum.

I. laeta differs from other species in the genus in characters furnished by the male genitalia.

Ipoides brunomaculata Evans

(Fig. 9, M)

Ipoides brunomaculata Evans, 1947, Trans.Roy.Soc.S.Aust. 72: 226.

Length, ♂, 5 mm. Face of head, excepting the vertex, yellowish-ivory. Scutellum deep chestnut-brown with 2 pale semi-circular markings. Tegmen pale hyaline-brown with irregular white markings; veins white, in part brown. Male genitalia as in Figure 9, M.

Type Location—British Museum.

Type Locality—Port Moresby, New Guinea.

Ipoides translucens Evans

(Fig. 9, H)

Ipoides translucens Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 156.

Length, ♂, 4 mm. Head, greyish-buff, but for the maxillary plates and lora which are evenly mottled with dark brown and yellow. Pronotum and scutellum grey mottled with dark brown. Tegmen transparent, with 2 brown spots against the hind margin of the clavus; veins pale brown with white bars. Male genitalia as in Figure 9, H.

Type Location—South Australian Museum.

Type Locality—Townsville, Queensland.

Ipoides melaleucae Evans

(Fig. 9, I1, I2)

Ipoides melaleucae Evans, 1947, Trans.Roy.Soc.S.Aust. 71: 226.

Length, ♂, 5 mm. Head, maxillary plates greyish; remainder of face pale greyish-brown evenly mottled with dark brown. Tegmen pale hyaline-brown; veins brown with white bars. Male genitalia as in Figure 9, I1, I2.

Type Location—British Museum.

Type Locality—Sogeri, New Guinea.

Collected on—Melaleuca.

(This species is closely related to *Ipoides translucens*).

Ipoides leai Evans

(Fig. 9, N)

Ipoides leai Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 156.

Length, ♂, 4 mm. Head ochreous marked with a pattern of dark brown and black. Scutellum dark brown, or black, with an imperfectly rounded pale area. Tegmen, yellowish-hyaline; an irregular whitish anterior fascia stretching diagonally across the tegmen from

near the centre of the costal margin to the apex of the scutellum; veins dark brown barred with white. Male genitalia as in Figure 9, N. The aedeagus is narrower apically than those of other species in this genus, but is not sufficiently different to justify the generic separation of this species.

Type Location—South Australian Museum.

Type Locality—Noumea, New Caledonia.

Ipoides minor sp. nov.

(Fig. 9, J)

Length, ♂, 4 mm. General coloration, pale tortoise-shell. Head and pronotum, dull ochre. Scutellum medially coffee-brown, laterally and posteriorly, black. Tegmen hyaline-brown, with or without, a variable pattern of dark brown and white. Male genitalia as in Figure 9, J.

Holotype ♂ and *Allotype* ♀ from Innisfail, Queensland (coll. R. A. O'Brien, 8/58) in the Australian Museum.

Ipoides minor differs from other species in this genus in the shape of the aedeagus and in its characteristic coloration.

Ipolo gen. nov.

The labium terminates between the middle coxae, the ante-clypeus is anteriorly depressed and the lora do not extend as far as the external margins of the maxillary plates. The crown of the head is longest against the eyes. In the tegmen there are 3 short veins between R and the costal border. The hind tibiae have 1 spur and numerous spines.

Ipolo differs from *Ipoella*, in which genus the type species was formerly placed, in having a differently shaped aedeagus.

Type species—*Ipoides davisi* Evans.

Ipolo davisi (Evans) (comb. nov.)

(Fig. 9, O)

Ipoella davisi Evans, 1947, Trans.Roy.Soc.S.Aust. 71: 227.

Length, ♂, 5 mm. Head, fronto-clypeus medially dark brown, shading to pale brown, laterally ivory; lora brown adjacent to the ante-clypeus, laterally ivory; maxillary plates ivory anterior to the antennae, dark brown beneath the eyes; vertex chestnut and very dark brown, posteriorly ivory. Crown brown with irregular dark brown markings. Pronotum buff mottled with brown. Scutellum dark brown. Tegmen hyaline, the costal margin and the apex smoky-brown, the remainder dark brown with a broad proximal white fascia and white markings at the apex of the first anal vein. Male genitalia as in Figure 9, O.

Type Location—British Museum.

Type Locality—Isdell River, Walcott Inlet, north-west Australia.

Collected on—*Ficus* sp.

Citripo Evans

Citripo Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 161.

The labium is short, terminating between the fore coxae; the ante-clypeus is apically recurved, the lora raised slightly above the maxillary plates antero-laterally and the fronto-clypeus evenly convex. The crown of the head is well developed and of even length throughout. The hind tibiae have 1 large and 1 small spur and 2 additional spines on the same edge; also several spines elsewhere.

Type species—*Citripo flandersi* Evans.

Citripo flandersi Evans

(Fig. 9, P1, P2)

Citripo flandersi Evans 1934, Trans.Roy.Soc.S.Aust. 58: 161.

Length, ♂ 5, ♀, 5·8 mm. Face of head, ante-clypeus, lora and maxillary plates. light brown mottled with black. Fronto-clypeus, vertex and crown, brown densely mottled with black. Pronotum and scutellum concolorous with the crown. Tegmen likewise concolorous with the crown, except for a prominent anterior white fascia which is surrounded by an irregular broad black area. Male genitalia as in Figure 9, P1, P2.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—"Qucensland".

Known distribution—Theodore, Hamilton (Queensland).

Collected on—Eremocitrus glauca.

Ipoella Evans

Ipoella Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 157.

Anipo Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 159 (syn. nov.).

The labium is short, terminating between the middle coxae, the lora and fronto-clypeus are flat and the antc-clypeus depressed. A crown is developed, either only narrowly against the eyes or also medially, and the pronotum is declivous to a varying extent. The hind tibiae have 1 spur and a few very small spines.

Type species—*Ipoella fidelis* Evans.

Ipoella fidelis Evans

(Fig. 10, A, 1-5)

Ipoella fidelis Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 157.

Ipoella canberrenis Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 159 (syn. nov.).

Length, ♂, 6-6·5 mm; ♀, 6·5-7·2 mm. Head greyish-yellow, sometimes with a dark brown T-shaped marking extending from the anterior margin of the ante-clypeus as far as the mid-vertex. Pronotum greyish, mottled with light and dark brown. Scutellum reddish-brown, laterally dark brown. Tegmen hyaline, irregularly mottled with dull brown; veins brown with white bars. Indistinct antcrior and posterior fasciae may be present. Male genitalia as in Figure 10, A, 1-5.

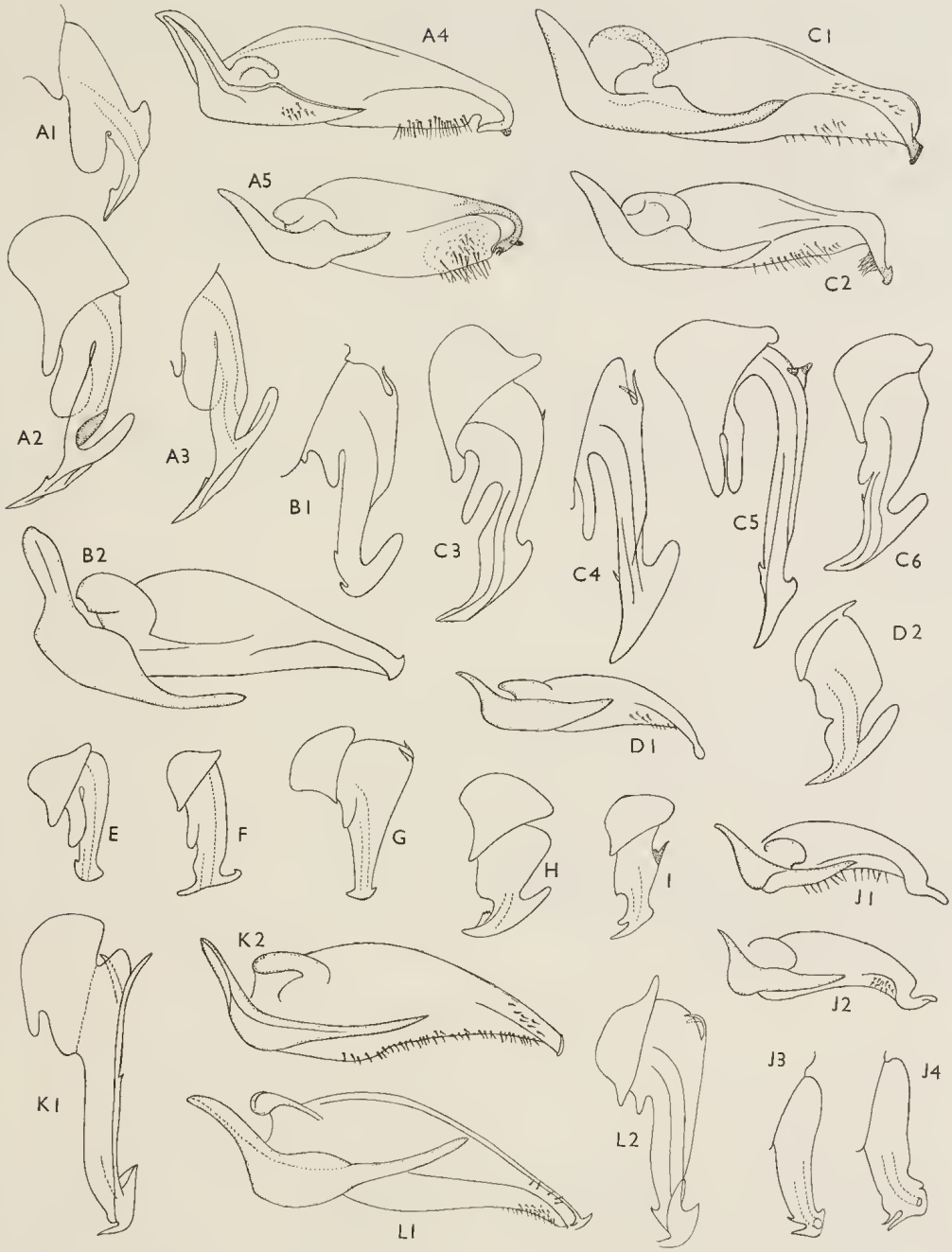


Fig. 10: A1-3, *Ipoella fidelis*, aedeagus; A4, 5, *I. fidelis*, subgenital plate and paramere; B1, *I. porriginosa*, aedeagus; B2, *I. porriginosa*, subgenital plate and paramere; C1, 2, *I. brunneus*, subgenital plate and paramere; C3-6, *I. brunneus*, aedeagus; D1, *I. norrisi*, subgenital plate and paramere; D2, *I. norrisi*, aedeagus; E, *I. flavens* aedeagus; F, *I. fulva*, aedeagus; G, *I. fusca*, aedeagus; H, *I. colmani*, aedeagus; I, *I. darwini*, aedeagus; J1, 2, *Katipo signoreti*, subgenital plate and paramere; J3, 4, *K. signoreti*, aedeagus; K1, *Katipo rubrivenosa*, aedeagus; K2, *K. rubrivenosa*, subgenital plate and paramere; L1, *K. pallescens*, subgenital plate; L2, *K. pallescens*, aedeagus.

Examination of a long series, from numerous localities, discloses a considerable degree of minor variation in the shape of the various parts of the male genitalia and it is for this reason that *I. canberrensis* is regarded as a synonym of the type species. The nature of this variation is illustrated.

Type Location—South Australian Museum.

Type Locality—Bunya Mountains, Queensland.

Known distribution elsewhere—Brisbane, Morven (Queensland); Narrabri, Cobbity (New South Wales); Canberra (A.C.T.); Eltham (Victoria).

Collected on—Eucalyptus.

Ipoella fulva Evans

(Fig. 10, F)

Ipoella fulva Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 144.

Length, ♂, 5 mm. Head, pale brownish-yellow, with a dark brown T-shaped marking. Pronotum grey mottled with brown. Scutellum brown. Tegmen pale colourless-hyaline mottled with brown. Male genitalia as in Figure 10, F.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Known distribution elsewhere—Perth, Yanchep (Western Australia).

Ipoella insignis (Distant)

Eurymeloides insignis Distant, 1908, Ann.Soc.Ent.Belg. 52: 103.

Ipoella insignis (Distant) Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 159.

Length, ♀, 7 mm. Head yellowish-brown, maxillary plates whitish. Pronotum pale yellowish-brown. Scutellum pale chestnut brown. Tegmen chocolate-brown with 2 transverse fasciae, the anterior white and opaque, the posterior one transparent and widest at the costal margin of the tegmen; clavus pale yellowish-brown.

Type Location—British Museum.

Type Locality—"Queensland".

Ipoella norrisi Evans

(Fig. 10, D1, D2)

Ipoella norrisi Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 48.

Length, ♂, 6 mm. Head pale biscuit colour with, or without, black or brown markings on the fronto-clypeus and vertex. Pronotum pale brown, or black, mottled with grey. Scutellum marked with an irregular black and brown pattern. Tegmen pale hyaline-white, partially suffused with light or dark brown, and with small anterior and posterior white fasciae that do not extend as far as the anal border. Male genitalia as in Figure 10, D1, D2.

Type Location—Australian Museum.

Type Locality—Fremantle, Western Australia.

Known distribution elsewhere—Balranald (New South Wales); Hattah (Victoria).

Collected on—Dodonaea attenuata.

Ipoella porriginosa (Signoret) (comb. nov.)
(Fig. 10, B1, B2)

Eurymela porriginosa Signoret, 1850, Ann.Soc.Ent.Fr. (2) 8: 512.

Bythoscopus luridus Walker, 1851, List.Homopt.Brit.Mus. 3: 870.

Anipo porriginosa (Signoret), Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 159.

Length, ♂, 5·8-6 mm; ♀, 6·8-7 mm. Head, pale brownish-yellow. Pronotum pale brownish-yellow or reddish-brown mottled with grey. Scutellum concolorous with the pronotum, or buff, or chestnut-brown. Tegmen hyaline-pink; veins red. The tegmen may be mottled with white spots and have an irregular white fascia. Male genitalia as in Figure 10, B1, B2.

Type Location—Natural History Museum, Vienna.

Type Locality—"Australia".

Known distribution—Canberra (A.C.T.); Berrima (New South Wales).

Collected on—Eucalyptus.

Ipoella brunneus (Evans) (comb. nov.)
(Fig. 10, C1-6)

Anipo brunneus Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 160.

Anipo unimaculata Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 160 (syn. nov.).

Length, ♂, 5-6·2 mm; ♀, 6-7 mm. Head evenly yellowish brown, or marked with an irregular, or bold, pattern of light and dark brown. Pronotum yellowish-brown mottled with grey, or dark brown mottled with light brown. Scutellum brown. Tegmen concolorous with the thorax, hyaline brown, sometimes with oval whitish markings. There may be an anterior irregular pale fascia or the tegmen may be dark hyaline-brown with both anterior and posterior pale fasciae. Male genitalia as in Figure 10, C, 1-6.

Figures are given of the genitalia of 4 specimens in order to illustrate the range of differences in the shape of the aedeagi of representatives of populations which, on the basis of present knowledge, seem best considered as belonging to a single species. By way of contrast reference should be made to Figure 13, D, E, which represent the aedeagi of some of the several different forms of the *Eurymela fenestrata-distincta* complex.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Canberra, A.C.T.

Known distribution elsewhere—Brisbane, Dalby, Cunnamulla (Queensland); Nyngan, Mullaley (New South Wales).

Collected on—Eucalyptus.

Ipoella flavens (Evans) (comb. nov.)
(Fig. 10, E)

Anipo flavens Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 144.

Length, ♂, 5 mm. General coloration, apricot. Tegmen hyaline, pale apricot. Male genitalia as in Figure 10, E.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Ipoella fusca (Evans) (comb. nov.)

(Fig. 10, G)

Anipo fusca Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 143.

Length, ♂, 3·5 mm. Head, ante-clypeus, lora and maxillary plates, pale yellowish-brown with a median chestnut-brown longitudinal stripe; vertex anteriorly dark brown, posteriorly pale brown. Pronotum and scutellum pale brown. Tegmen, colourless-hyaline; clavus pale hyaline-brown; veins with brown and white markings. Male genitalia as in Figure 10, G.

Type Location—British Museum.

Type Locality—Perth, Western Australia.

Ipoella darwini (Evans) (comb. nov.)

(Fig. 10, I)

Anipo darwini Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 114.

Length, ♂, 4·5 mm. Head, lora and maxillary plates pale whitish-brown; ante-clypeus reddish-brown. Pronotum and scutellum, dark brown mottled with yellow. Tegmen colourless-hyaline with pale brown and whitish oval markings; clavus pale hyaline-brown with white markings. Male genitalia as in Figure 10, I.

Type Location—British Museum.

Type Locality—King George's Sound, Western Australia.

Type Collector—Charles Darwin, February, 1836.

Ipoella colmani sp. nov.

(Fig. 10, H)

A very distinctive species, eurymeline in appearance.

Length, ♂, 5·5, ♀, 6 mm. Head, maxillary plates and lora externally, ivory; remainder dark purplish-brown, excepting around and below the ocelli, brown. Pronotum anteriorly concolorous with head; hind margin broadly white; remainder black, except for a narrow anterior oblique white fascia, a hyaline area close to the costal margin and a smaller hyaline area at apex of claval suture. Male genitalia as in Figure 10, H.

Holotype ♂ and *Allotype* ♀ from Dungog, New South Wales (coll. P. Colman, 12/58) in the Australian Museum.

Katipo Evans

Katipo Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 160.

The labium terminates between the middle coxae, the ante-clypeus is anteriorly depressed and the lora are flat. The crown is developed only narrowly against the eyes. The pronotum is moderately declivous. The hind tibiae have 2 spurs and a few small spines.

Type species—*Eurymeloides rubrivenosus* Kirkaldy.

Katipo rubrivenosa (Kirkaldy)

(Fig. 10, K1, K2)

Eurymeloides rubrivenosus Kirkaldy, 1906, Bull.Hawaii.Sug.Ass.Exp. Sta. 1 (9): 353.

Eurymeloides lentiginosus Kirkaldy, 1906, Bull.Hawaii.Sug.Ass.Exp.Sta. 1 (9): 353.

Katipo rubrivenosa (Kirkaldy) Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 160.

Length, ♂, 5-6·2 mm; ♀, 5·8-6 mm. Head, ante-clypeus, fronto-clypeus laterally, lora and maxillary plates, light brown mottled with dark brown. Fronto-clypeus medially and vertex, brown mottled with black. Pronotum pale brown, densely mottled with light, dark brown, or black. Scutellum light or dark brown. Tegmen, clavus hyaline reddish-brown; remainder, in part, smoky brown; an indistinct anterior transverse narrow white fascia, with numerous circular hyaline areas near the costal margin posteriorly; veins reddish-brown. Male genitalia as in Figure 10, K1, K2.

Type Location—H.S.P.A., Honolulu.

Type Locality—Mittagong, New South Wales.

Known distribution elsewhere—Sydney, Dungog, Hay (New South Wales); Brisbane, Maryborough (Queensland); Timbertop (Victoria).

Collected on—*Eucalyptus.*

Katipo signoreti Evans

(Fig. 10, J1-4)

Katipo signoreti Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 161.

Length, ♂, 5-6 mm; ♀, 6·8-7 mm. Head pale brown, sometimes mottled with dark brown medially. Pronotum and scutellum concolorous with the head. Tegmen hyaline pinkish-brown or pale or dark brown with evenly distributed small circular pale areas. Male genitalia as in Figure 10, J1-4.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Canberra, A.C.T.

Known distribution elsewhere—Springdale, Rockbank, Inglewood (Victoria); Dungog (New South Wales); Brisbane (Queensland).

Collected on—*Eucalyptus.*

Katipo pallescens (Evans) (comb. nov.)

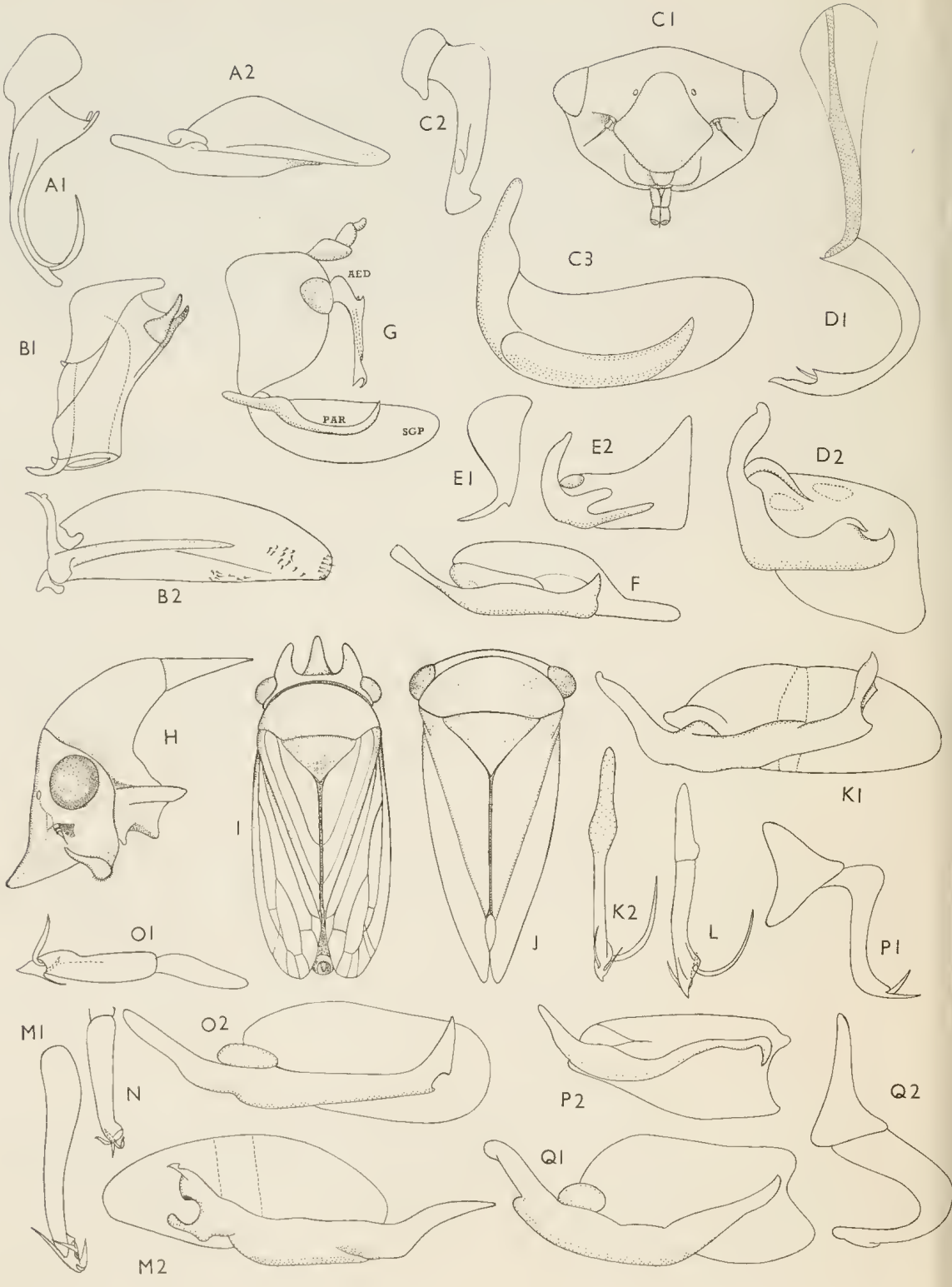
(Figure 10, L1, L2)

Anipo pallescens Evans, 1947, Trans.Roy.Soc.S.Aust. 71: 226.

Length, ♂, 5.5 mm. Head, maxillary plates, lora and fronto-clypeus laterally, ivory partially suffused with apricot; ante-clypeus, fronto-clypeus medially, and vertex, deep coffee brown with pale oval markings. Pronotum pale greyish-brown, laterally dark brown. Tegmen pale hyaline brown with evenly distributed colourless circular hyaline areas. Male genitalia as in Figure 10, L1, L2.

Type Location—British Museum.

Type Locality—Sogeri, New Guinea.


A1
A2
B1
B2
C1
C2
C3
D1
D2
E1
E2
F
G
AED
PAR
SGP
H
I
J
K1
K2
L
M1
M2
N
O1
O2
P1
P2
Q1
Q2

Nanipoides gen. nov.

The labium terminates between the middle coxae. There is a deep transverse groove at the apex of the ante-clypeus and the lora are on the same plane as the maxillary plates. The fronto-clypeus is slightly convex and the vertex laterally concave.

The crown of the head, as viewed from above, is of even length with the inner margins of the eyes. The hind tibiae have 1 spur and several small spines.

Type species—*Ipoides maculosa* Evans.

Nanipoides differs from *Ipoides* in shape, size and coloration, and in the characters furnished by the male genitalia.

Nanipoides maculosa (Evans) (comb. nov.)

(Fig. 11, A1, A2)

Ipoides maculosa Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 48.

Length, ♂, 7·5 mm; ♀, 8 mm. Head, pronotum and scutellum black, mottled with grey and brown. Tegmen largely black with numerous, approximately circular, grey, or brown, markings and with 2 transverse irregular white, or hyaline, fasciae. Male genitalia as in Figure 11, A1, A2.

Type Location—Australian Museum.

Type Locality—Frome Downs Station, South Australia.

Known distribution elsewhere—Merinee (Victoria); Gell, Gympie (Queensland); Mittagong (New South Wales).

Collected on—Heterodendron oleifolium.

Eurymelella Evans

Eurymelella Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 47.

This genus, on account of its general appearance and coloration, has previously been included in the Eurymelini. It is transferred to the Ipoini because of the lack of styles on the sub-genital plates.

The labium terminates between the middle coxae. The face of the head is convex and the antennal ledges distinct. The crown is well developed and longest against the eyes. The hind tibiae have 1 spur and numerous spines.

Type species—*Eurymelella tonnoiri* Evans.

OPPOSITE

Fig. 11: A1, *Nanipoides maculosa*, aedeagus; A2, *N. maculosa*, subgenital plate and paramere; B1, *Anacornutipo lignosa*, aedeagus; B2, *A. lignosa*, subgenital plate and paramere; C1, *Opio multistrigia*, face of head; C2, *O. multistrigia*, aedeagus; C3, *O. multistrigia*, subgenital plate and paramere; D1, *Stenipo bifurcata*, aedeagus; D2, *S. bifurcata*, subgenital plate and paramere; E1, *Stenipo swani*, aedeagus; E2, *S. swani*, subgenital plate and paramere; F, *Stenipo torpens*, subgenital plate and paramere; G, *Eurymelella tonnoiri*, male genitalia; H, *Cornutipo scalpellum*, head and thorax in profile; I, *Cornutipoides tricornis;* J, *Stenipo torpens;* K1, *Ipo conferta*, subgenital plate and paramere; K2, *I. conferta*, aedeagus; L, *I. aegrota* aedeagus; M1, *I. pellucida* aedeagus; M2, *I. pellucida*, subgenital plate and paramere; N, *I. hilli*, aedeagus; O1, *I. sordida*. aedeagus; O2, *I. sordida*, subgenital plate and paramere; P1, *Malipo speciosa*, aedeagus; P2, *M. speciosa*, subgenital plate and paramere; Q1, *M. bianchii*, subgenital plate and paramere; Q2, *M. bianchii*, aedeagus.

Eurymelella tonnoiri Evans

(Fig. 11, G)

Eurymelella tonnoiri Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 47.

Length, ♂, 5 mm. Head black, excepting the lora, which are in part pale brown and the crown, which has 4 white spots. Pronotum black, the hind margin, in part, white. Scutellum black. Tegmen black with irregular hyaline areas; a narrow sinuate anterior white fascia; veins brown. Male genitalia as in Figure 11, G.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Mt Kosciusko, New South Wales.

Known distribution elsewhere—Lake St Clair, Tasmania.

Opio Evans

Opio Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 165.

Narrowly wedge-shaped insects; the head flat and only slightly wider than long. The labium terminates between the middle coxae, and the crown of the head, which is well developed, is wider against the eyes than in the centre. The hind tibiae have 2 spurs; sometimes there is a third small one and as well a few small spines.

Type species—*Bythoscopus multistrigia* Walker.

Opio multistrigia (Walker)

(Fig. 11, C1, C2, C3)

Bythoscopus multistrigia Walker, 1958, Ins.Saund.Homopt. 105.

Opio multistrigia (Walker), Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 165.

Length, ♂, ♀, 7 mm. Head bright yellow, evenly mottled with black. Pronotum and scutellum, yellow, or greyish-yellow with a pattern of black markings. Tegmen, giving the impression of having black and yellow longitudinal stripes; posterior costal area sometimes hyaline, veins yellow, or the same colour as the surrounding tegmen. Male genitalia as in Figure 11, C2, C3.

Type Location—British Museum.

Type Locality—Unknown.

Known distribution—Sydney (New South Wales); Canberra (A.C.T.).

Collected on Casuarina.

Anacornutipo Evans

Anacornutipo Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 163.

The face of the head is nearly twice as wide as long. The lora and ante-clypeus are steeply declivous anteriorly and posteriorly slope down from the flat fronto-clypeus, which is on the same plane as the vertex. The post-clypeus, anteriorly, is produced into a thickened lip-like fold. The crown of the head is visible only against the eyes on each side. The fore and middle femora have a series of widely spaced strong spurs on their hind margins. The hind tibiae have 1 spur and a few minute spines.

Type species—*Eurymela lignosa* Walker.

Anacornutipo lignosa (Walker)

(Fig. 11, B1, B2)

Eurymela lignosa Walker, 1858, List.Homopt.Brit.Mus., Supplement, 166.

Anacornutipo lignosa (Walker), Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 163.

Length, ♂, 4·8-5 mm; ♀, 5·5-6 mm. Head and pronotum pale brownish-yellow mottled with brown and black. Scutellum largely black. Tegmen yellowish-brown with dark brown areas; a narrow, sinuous, anterior white fascia may be present; posterior costal border with extensive hyaline areas. Male genitalia as in Figure 11, B1, B2.

Type Location—British Museum.

Type Locality—"New Holland".

Known distribution—Mootwingie, Bogan River (New South Wales); Maryborough, Stanthorpe, Moolooka (Queensland); Serpentine, Swan River, King George's Sound (Western Australia); Lake Hattah (Victoria).

The 2 species which follow have been placed in separate genera because each has an unusual and differently shaped head. Nevertheless, since they have many features in common they might equally well have been ascribed to a single genus.

These common features are a very short labium, anteriorly swollen lora, deep antennal pits; pro-epimera with a finger-like backwardly projecting process; externally flattened tibiae; punctate tegmina, which are similar in shape and coloration and male genitalia with unusually small, and largely concealed, subgenital plates.

Although one of the 2 species has been taken on a eucalypt, it has also, as have specimens of the other species, been recorded from representatives of the Proteaceae.

For this reason, as well for others which are difficult to define and more in the nature of informed impressions, it is possible that both species are relict forms; that is to say they may have been in existence prior to the period of the evolutionary radiation of the Eurymelidae which gave rise to the greater part of the existing fauna.

If this suggestion is a correct one, then it is of interest to note that relict eurymelids may be associated with tropical conditions unlike some of the relict cicadellids occurring in Australia which occur particularly in wet, cold environments.

Cornutipo Evans

Cornutipo Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 164.

The labium terminates between the middle coxae. The ante-clypeus slopes downward anteriorly and the lora are anteriorly swollen. The maxillary plates are narrow and the antennal ledges and eyes are prominent. The post-clypeus is medially produced into an angular upturned flap-like process. The frons, and post-clypeus posteriorly, are flat and on the same plane as the vertex and there is a pair of transverse ridges parallel to the antennal ledges and in alignment with the ocelli. The crown of the head is only narrowly visible against the eyes. The sides of the pronotum widely separate the head from the bases of the tegmina and each pro-epimeron is posteriorly produced into a narrow tongue-like process. The tegmina are apically broad with small appendices. The tibiae of all 3 pairs of legs are wide and flattened externally. The hind tibiae have a single spur and their margins bear a fringe of fine hair-like spines.

Type species—*Cornutipo scalpellum* Evans.

Cornutipo scalpellum Evans

(Fig. 11, H)

Cornutipo scalpellum Evans, 1934, Trans.Roy. Soc.S.Aust. 58: 164.

Length, ♂, 5·5-6 mm; ♀, 8 mm. Head and pronotum brown, or pale greyish-brown, finely and evenly mottled with dark brown. Scutellum brown, laterally dark brown. Tegmen punctate, grey, brown or almost black with hyaline areas and sometimes with indistinct anterior and posterior pale fasciae.

Type Location—British Museum.

Type Locality—Duaringa, Queensland.

Known distribution elsewhere—Red Cliffs (Victoria); Lake Mackay, Alice Springs (Central Australia); Pentland, Carnavon Ranges (Queensland); Strahorn State Forest (New South Wales).

Collected on—Hakea and *Eucalyptus dichromophloia.*

Cornutipoides Evans

Cornutipoides Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 164.

The labium terminates between the fore coxae. The ante-clypeus and the lora slope downwards anteriorly and the lora are posteriorly concave. The post-clypeus is produced into a narrow, flattened, upturned horn and the vertex on each side, against the eyes, into a pair of narrow flattened inwardly turning horns. The eyes are prominent. The pronotum, which is wider posteriorly than anteriorly, widely separates the eyes from the bases of the tegmina, and the pro-epimera are narrowly produced posteriorly. The tegmina are punctate and apically wide and the appendices small. The tibiae are quadrilateral in section and the hind tibiae have a single spur and a few small spines.

Type species—*Cornutipoides tricornis* Evans.

Cornutipoides tricornis Evans

(Fig. 11, I)

Cornutipoides tricornis Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 164.

Length, ♂, 6 ♀, 8 mm. Head, pronotum and scutellum, yellowish mottled with dark brown. Tegmen light, or dark, greyish-brown, sometimes with indistinct anterior and posterior fasciae.

Type Location—South Australian Museum.

Type Locality—"North West Australia".

Known distribution elsewhere—Derby, Cunderdin (Western Australia); Mareeba, Atherton Tableland (Queensland).

Collected on—Grevillea pteridifolia, G. paralleia, G, glauca and *Melaleuca acaciodes.*

Stenipo Evans

Stenipo Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 155.

The face of the head is almost flat and wider than long. The labium terminates between the middle coxae and there is a distinct crown which is longest against the eyes, or of even length. The tegmina narrow apically and the appendices are large. The hind tibiae have 1 spur and several strong spines.

Type species—*Stenipo swani* Evans.

The 2 species assigned to this genus in addition to the type species, differ from each other, and from *S. swani*, in the characters of the male genitalia. For this reason they might each have been placed in separate genera. This has not been done because of their close resemblance in other respects.

Stenipo torpens (Jacobi)

(Fig. 11, F)

Ipo torpens Jacobi, 1909, Faun.S.W.Aust.Michaelsen.u.Hartmeyer 2: 341.

Stenipo grisea Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 145 (syn. nov.).

Length, ♂, 4·5-5 mm. Head anteriorly grey; fronto-clypeus and vertex anteriorly pinkish. Crown grey with brown markings. Pronotum pale greyish-brown. Scutellum pale reddish-brown. Tegmen hyaline grey; veins pink. Male genitalia, aedeagus narrowly cylindrical, curved; sub-genital plates and parameres as in Figure 11, F.

Type Location—Paratype in Zoological Museum, Hamburg (Type destroyed).

Type Locality—Mongers Lake, near Subiaco, Western Australia.

Known distribution elsewhere—Dongarra, Broome (Western Australia).

Stenipo swani Evans

(Figs. 11, E1, E2)

Stenipo swani Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 155.

Length, ♂, 4 mm. Head yellowish-grey suffused with dark brown, fronto-clypeus sometimes pinkish. Pronotum and scutellum greyish sparsely mottled with brown. Tegmen hyaline, or opaque; clavus and costal area anteriorly, punctate; a narrow antcrior and a broad posterior transverse white fascia may be present; veins black with white bars. Male genitalia as in Figure 11, E1, E2.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Rottnest Island, Western Australia.

Stenipo bifurcata Evans

(Fig. 11, D1, D2)

Stenipo bifurcata Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 155.

Length, ♂, 5 mm. Head anteriorly pale yellowish-brown; posteriorly brown, densely mottled with very dark brown and black. Pronotum greyish, mottled with dark brown, an indistinct broad grey longitudinal stripe and 2 pale brown oval areas against the antcrior

margin. Scutellum dark brown and grey; lateral angles chestnut brown. Tegmen proximally whitish-opaque; distally yellowish-hyaline; costal and claval areas anteriorly punctate; veins brown with white bars. Male genitalia as in Figure 11, D1, D2.

Type Location—South Australian Museum.

Type Locality—Corney Point, South Australia.

Ipo Kirkaldy

Ipo Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. (1) (9): 464.

Broadly wedge-shaped insects with the tegmina steeply tectiform. The head, which sometimes bears short fine hairs, is considerably broader than long and slightly convex. The maxillary plates are wide, the antennal pits shallow, the eyes prominent and the labium extends as far as the base of the hind coxae. The crown of the head is developed laterally against the eyes. The pronotum is sometimes hairy. The tegmina are broad with a narrow appendix which usually continues around the apex of the tegmen to the costal margin. The hind tibiae usually have 2 spurs, but sometimes only one, and may have as many as five. They also have numerous strong spines. In the male genitalia the aedeagus consists of a horizontal column with apical spines, the sub-genital plates are broad, and the parameres almost as long, or longer, than the sub-genital plates.

Type species—*Ipo ambita* Kirkaldy.

Ipo pellucida (Fabricius)

(Figs. 6, A, 11, M1, M2)

Cicada pellucida Fabricius, 1794, Entom.Syst. 4: 41, 60.

Ipo ambita Kirkaldy, 1906, Bull.Hawaii, Sug.Ass.Exp.Sta. 1 (9): 465.

Ipo pellucida (Fabricius), Evans, 1934, Trans.Roy.Soe.S.Aust. 58: 151.

Length, ♂, 6-7 mm; ♀, 8-9 mm. Head chestnut brown suffused to a varying extent with dark brown. Pronotum pale, or, dark brown sometimes with a median longitudinal white stripe. Scutellum pale, or, deep chestnut brown. Tegmen, either entirely hyaline or transparent, or mottled with dark brown or black, sometimes with a broad anterior hyaline white fascia; veins dark brown, or black, with white bars. Male genitalia as in Figure 11, M1, M2.

Type Location—Unknown.

Type Locality—Unknown.

Known distribution—Burleigh, Atherton Tableland, Macpherson Ranges, Townsville (Queensland); Burnside, Groote Eylandt (Northern Territory).

Collected on—Grevillea.

Ipo aegrota Kirkaldy

(Fig. 11, L)

Ipo aegrota Kirkaldy, 1906, Bull. Hawaii Sug.Ass.Exp.Sta. (1 (9): 466.

Length, ♂, 5, ♀, 5-6 mm. Head pale testaceous. Pronotum and scutellum pale brown. Tegmen hyaline yellowish-brown, sometimes with an ill-defined anterior whitish fascia. Hind tibia with a single spur. Male genitalia as in Figure 11, L.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Formerly (1934) I had regarded this species as a synonym of *Ipo pellucida*. Examination of the type has disclosed that it is a distinct species, closely related to *Ipo pompais*, from which it differs in having a smooth head and longer and narrower tegmina.

Ipo conferta Kirkaldy

(Fig. 11, K1, K2)

Ipo conferta Kirkaldy, 1906, Bull.Hawaii.Sug.Ass.Exp.sta. 1 (9): 465.

Ipo conferta Kirkaldy, Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 153.

Length, ♂, 4, ♀, 6 mm. Head brown, sometimes with a mottled appearance; vertex sometimes dark brown or black. Pronotum greyish-brown lightly, or profusely, mottled with brown or black. Scutellum largely brown or black. Tegmen largely hyaline grey, brown or black, sometimes with an irregular white hyaline transverse fascia and often with numerous vitreous areas apically. Male genitalia as in Figure 11, K1, K2.

Type Location—H.S.P.A. Honolulu.

Type Locality—Brisbane, Queensland.

Known distribution elsewhere—Burleigh, Maryborough, Rockhampton, Bowen, Innisfail (Queensland).

Collected on—Acacia sp. (If this record is correct, it is the only one of a eurymelid on *Acacia*); *Melaleuca* sp.

Previously (Evans, 1934) I redescribed an *Ipo* sp., which I had supposed to represent *I. conferta*, and also figured its male genitalia. Subsequent examination of the type has disclosed that the insect believed to have been this species was, in fact, undescribed. It is now transferred to another genus and named *Malipo bianchii* sp. nov. The male genitalia ascribed in the same paper to *I. honiala* were actually those of *I. conferta*.

Ipo pompais Kirkaldy

Ipo pompais Kirkaldy, 1907, Bull. Hawaii. Sug.Ass.Exp.Sta. 3: 35.

Ipo pompais Kirkaldy, Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 153.

Length, ♂, 5 mm. Head with fine hairs, pale brown, mottled with brown. Pronotum pale brown. Scutellum brown, lateral angles dark brown, Tegmen hyaline, mottled with light and dark brown. Hind tibia with a single spur.

Type Location—H.S.P.A., Honolulu.

Type Locality—Nelson, Queensland.

Formerly (1934) I had regarded *I. pompais* as a synonym of *I. conferta*. Examination of the type has shown that *I. pompais* appears to be a distinct species but as the male genitalia have not been examined this determination is uncertain.

Ipo sordida Evans

(Fig. 11, O1, O2)

Ipo sordida Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 154.

Length, ♂, 5 mm. Head with fine, short hairs, pale chestnut brown with dark brown and black markings. Pronotum grey, denscly mottled with dull brown. Scutellum chestnut, or dark brown. Tegmen largely hyaline; anterior costal and claval areas punctate; an indistinct broad anterior whitish fascia; veins brown. The whole tegmen is mottled with dull brown especially around the veins; veins faintly and irregularly barred with white. Male genitalia as in Figure 11, O1, O2.

Type Location—South Australian Museum.

Type Locality—Thursday Island, Queensland.

Ipo hilli Evans

(Fig. 11, N)

Ipo hilli Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 154.

Length, ♂, 5, ♀, 7 mm. Head light, or dark brown, mottled with buff; maxillary platcs and lora paler than the fronto-clypeus and vertex. Pronotum hairy, grey mottled with dark brown, with a grey median longitudinal stripe; scutellum light or dark brown, posteriorly yellow. Tegmen, anterior two-thirds, dcep chocolate brown with brown veins; posterior third transparent with white veins; an anterior transverse irregular fascia. Hind tibia with 5 spurs. Male gcnitalia as in Figure 11, N.

Type Location—South Australian Muscum.

Type Locality—Darwin, North Australia.

Malipo gen. nov.

The labium terminates betwcen the base of the hind coxae. The fronto-clypeus is convcx. The antennal ledges arc distinct and there is a well-defined crown, slightly wider against the eycs than in thc centre. Thc tegmina are apically narrow with a wide appendix which narrowly continues around the apcx of the tegmen. The hind tibiac have 2 spurs and numerous spines. In the male genitalia, the sub-genital plates are broad and apically emarginatc and the aedeagus is hook-shaped.

Type spccics—*Ipo speciosa* Evans.

Malipo differs from *Ipo* in bcing narrowly, instead of broadly, wedge-shaped and in the characters of thc male genitalia.

Malipo speciosa (Evans) (comb. nov.)

(Fig. 11, P1, P2)

Ipo speciosa Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 144.

Length, ♂, ♀, 7 mm. Head, ante-clypeus and lora anteriorly declivous, almost as long as broad, white, or cream, with dark brown and black markings. Pronotum grey, or yellow, mottled with very dark brown, with a broad median longitudinal white stripe. Scutellum brown, or black, with pale markings. Tegmen whitish-hyaline with a broad

ransverse, opaque, white fascia bordered with black; apically largely vitreous; veins largely black. Male genitalia as in Figure 11, P1, P2.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Known distribution elsewhere—Lake Grace, Merreden (Western Australia).

Malipo bianchii sp. nov.

(Fig. 11, Q1, Q2)

Length, ♂, ♀, 7-7·5 mm. Head, ante-clypeus and lora flat, wider than long, pale yellowish-brown mottled with dark brown or black; maxillary plates, and lora, buff. Pronotum and scutellum greyish-yellow mottled with dark brown or black. Tegmen pale yellowish-hyaline sparsely mottled with dark brown or black; apically largely transparent and with a broad anterior white fascia which extends from the costal border to vein Cul.

Holotype ♀ from Brisbane, Queensland (coll. P. W. Grogan, 10/30) in the Queensland Museum.

Known distribution elsewhere—Fraser Hill, Ripley (Queensland).

The genitalia of the *M. bianchii* have been figured previously (Evans, 1934) and ascribed to *Ipo conferta* Kirkaldy. Examination of the type of the latter species has disclosed the former error. *M. bianchii* resembles *M. speciosa* in shape and general appearance. It differs in size, being slightly larger; in proportions having the face of the head wider than long instead of approximately as wide as long, and in the shape of the aedeagus.

Eurymelini

A typical representative of the Ipoini is predominantly brown, pink, or grey in colour and has sub-genital plates lacking accessory styles. A typical representative of the Eurymelini is predominantly black with white, or coloured, fasciae on the tegmina and with sub-genital plates bearing accessory styles.

As has already been mentioned the two groups are not completely differentiated from each other. Thus, there are brown species which have sub-genital plates furnished with styles; predominantly black species which have sub-genital plates furnished with styles and predominantly black species with sub-genital plates lacking styles. In the Eurymelini, as in the Ipoini, there are several species which exhibit considerable variation in colour pattern, either of a constant, or else a variable, nature.

Also, in the Eurymelini, as in the Ipoini, and even to a greater extent in the latter tribe, there are genera comprising species that may be regarded as climax ones. Of these the most outstanding are *Eurymela* and *Eurymelops*, which comprise the largest and most highly specialized species.

Key to the Genera of the Eurymelini

1. Hind tibia with 1 spur 2
   Hind tibia with more than 1 spur 6
2. (1) Eurymeline in appearance 3
   Not eurymeline in appearance 5

3. (2) Venation of tegmina reticulate 4
Venation of tegmina not reticulate ..... **Dremuela** gen. nov.

4. (3) Insects oval in outline. Head globosely convex; front femora with several small spurs ..... **Platyeurymela** Evans
Wedge-shaped insects; head not globosely convex; front femora lacking spurs ..... **Eurymela** Le. P. & Serv.

5. (2) Broadly wedge-shaped insects ..... **Pauripo** Evans
Narrowly wedge-shaped insects, crown of even length.... **Aloeurymela** gen. nov.

6. (1) Fronto-clypeus evenly convex, globose, or flat 7
Fronto-clypeus produced into a transverse spade-shaped process ..... **Eurymelops** Kirkaldy

7. (6) Front and middle femora lacking spurs 8
Front femora with 1 spur; middle femora with 3 spurs ..... **Eurymelita** Evans

8. (7) Hind tibia with less than 4 spurs, eurymeline in appearance 9
Hind tibia with 4 spurs, ipoine in appearance ..... **Eurypella** gen. nov.

9. (8) Hind tibia with 3-5 spurs; venation of tegmen never reticulate 10
Hind tibia with 2-3 spurs; venation of tegmen usually reticulate ..... **Pauroeurymela** Evans

10. (9) Face of head, apart from vertex posteriorly, entirely black. Hind tibia with spurs on 1 margin only ..... **Eurymelessa** Evans
Face of head not entirely black. Hind tibia with spurs on 2 margins ..... **Eurymeloides** Kirkaldy

Pauripo Evans

Pauripo Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 161.

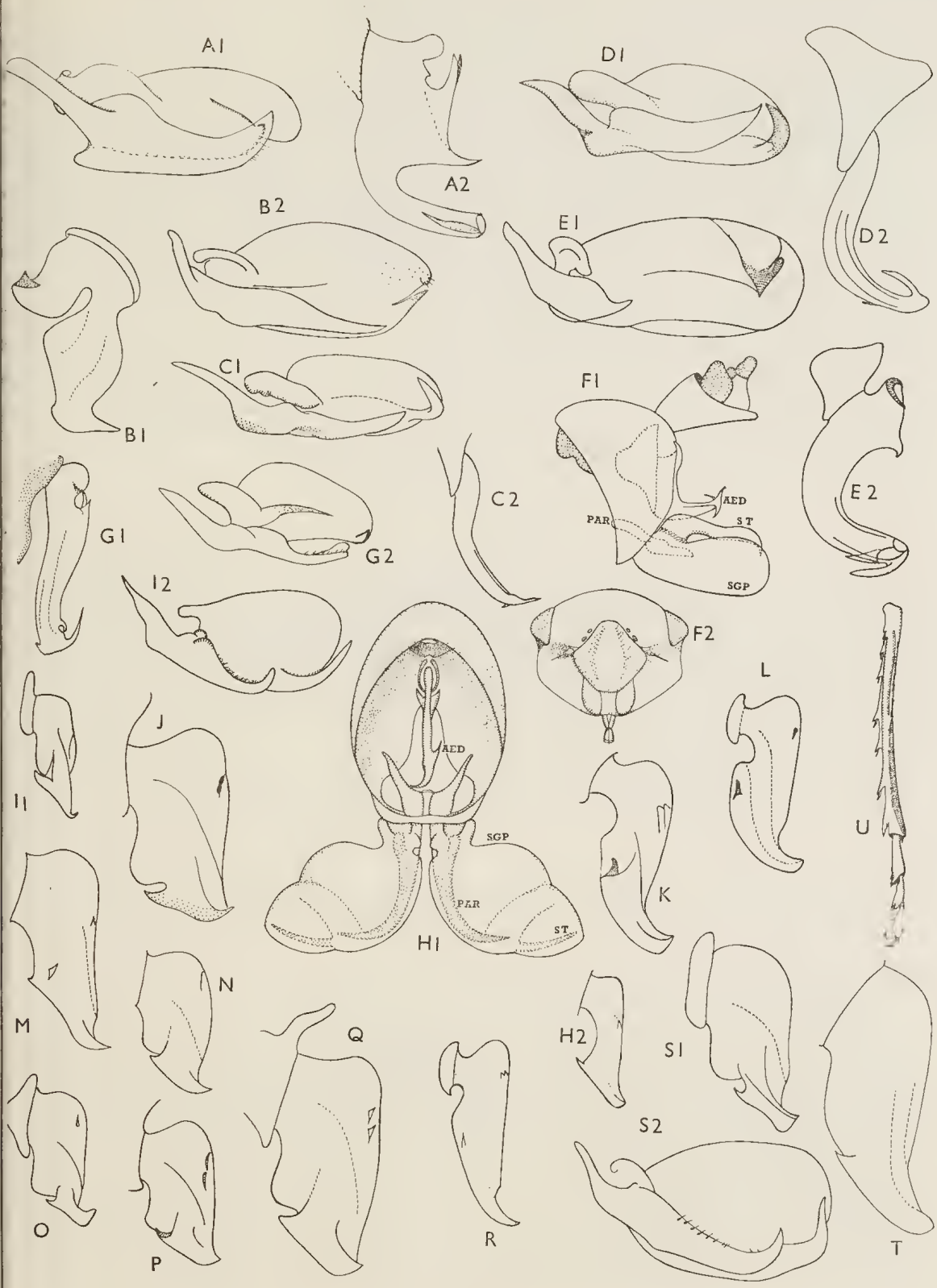
Small squat insects in which the head is considerably wider than long and the ante-clypeus and lora anteriorly declivous. The antennal ledges are distinct and extend to half-way between the fronto-clypeus and the eyes. The crown is visible only as a narrow border against the eyes. The hind tibiae have a large spur on one of the inner edges and 2 somewhat smaller ones on one of the others.

Type species—*Pauripo insularis* Evans.

This genus was formerly included in the Ipoini because of the general appearance and coloration of comprised species. It is transferred to the Eurymelini since the sub-genital plates have broad ventral accessory styles.

OPPOSITE

Fig. 12: A1, *Pauripo insularis*, subgenital plate and paramere; A2, *P. insularis*, aedeagus; B1, *Eurypella tasmaniensis*, aedeagus; B2, *E. tasmaniensis*, subgenital plate and paramere; C1, *Aloeurymela langfieldi*, subgenital plate and paramere; C2, *A. langfieldi*, aedeagus; D1, *Aloeurymela gearyi*, subgenital plate and paramere; D2, *A. gearyi*, aedeagus; E1, *Dremuela hieroglyphica*, subgenital plate and paramere; E2, *D. hieroglyphica*, aedeagus; F1, *Eurymelita terminalis*, male genitalia; F2, *E. terminalis*, face of head; G1, *Eurymelessa moruyana*, aedeagus; G2, *E. moruyana*, subgenital plate and paramere; H1, *Eurymeloides pulchra*, male genitalia, viewed from behind; H2, *E. pulchra*, aedeagus; I1, *Eurymeloides bicincta*, aedeagus; I2, *E. bicincta*, subgenital plate and paramere; J, *Eurymeloides perpusilla*, aedeagus; K, *Eurymeloides punctata*, aedeagus; L, *Eurymeloides nigrobrunnea*, aedeagus; M, *Eurymeloides adspersa*, aedeagus; N, *Eurymeloides marmorata*, aedeagus; O, *Eurymeloides minutum*, aedeagus; P, *Eurymeloides lineata*, aedeagus; Q, *Eurymeloides rogerensis*, aedeagus; R, *Eurymeloides kalimensis*, aedeagus; S1, *Eurymeloides musgravei*, aedeagus; S2, *E. musgravei*, subgenital plate and paramere; T, *Eurymeloides walkeri*, aedeagus; U, *Eurymeloides pulchra*, hind tibia. AED, aedeagus; PAR, paramere; SGP, subgenital plate.


A1
A2
B1
B2
C1
C2
D1
D2
E1
E2
F1
F2
G1
G2
H1
H2
I1
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S1
S2
T
U
AED
PAR
ST
SGP

Pauripo insularis Evans

(Fig. 12, A1, A2)

Pauripo insularis Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 161.

Pauripo continentalis Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 163 (syn. nov.).

Length, ♂, 4 mm. Head chestnut brown suffused to a varying extent with dark brown or black; maxillary plates and lora sometimes paler than the rest of the head. Pronotum greyish-brown mottled with dark brown. Scutellum black. Tegmen hyaline, mottled with dull brown especially in the claval area; veins brown or pink. The tegmen may be entirely hyaline except for the clavus and there may be traces of narrow anterior and posterior transverse fasciae. Male genitalia as in Figure 12, A1, A2.

Type Location—South Australian Museum.

Type Locality—Kangaroo Island, South Australia.

Known distribution elsewhere—Hattah, Kiata (Victoria); Balranald (New South Wales); Toowoomba (Queensland); Lucindale (South Australia).

Eurypella gen. nov.

On the face of the head the labium terminates between the middle coxae and the antennal ledges are well developed. The crown is slightly wider against the eyes than in the centre. The tegmina have wide appendices. The hind tibiae have 4 spurs decreasing in size from the apex to the base, and as well strong, evenly-spaced, spines on 2 other edges. In the male genitalia, the sub-genital plates have well developed ventral, apical accessory styles.

Type species—*Bakeriana tasmaniensis* (Evans).

Eurypella resembles *Bakeriana* in coloration, tibial armature and in having wide tegminal appendices. It differs in characters furnished by the male genitalia.

Eurypella tasmaniensis (Evans) (comb. nov.)

(Fig. 12, B1, B2)

Bakeriola tasmaniensis Evans, 1947, Trans.Roy.Soc.S.Aust. 71: 227.

Length, ♂, 4·2-5 mm. Face black mottled with reddish brown except for the lora and maxillary plates which are marked with a pattern of brown and cream. Crown and pronotum mottled with light and dark brown and greyish-white. Scutellum dark brown with yellowish spots. Tegmen, clavus anteriorly concolorous with the thorax; remainder dark hyaline brown with round hyaline-white markings and with 2 irregular and incomplete transverse white fasciae. Male genitalia as in Figure 12, B1, B2.

Type Location—British Museum.

Type Locality—Risdon, Tasmania.

Known distribution elsewhere—Frankston (Victoria).

Aloeurymela Evans

Aloeurymela Evans, 1965, Proc.Linn.Soc.N.S.W. 90: 85.

On the face of the head the labium terminates between the middle coxae and the anterior margin of the ante-clypeus is depressed below the rest of the sclerite. The crown of the head is only slightly wider against the eyes than in the centre. The tegmen has a well developed appendix. The hind tibiae have 1 spur and a few additional small spines. The male genitalia have oval-shaped sub-genital plates bearing terminal hook-like styles arising from the ventral margins.

Type species—*Aloeurymela gearyi* Evans.

In coloration and general appearance *Aloeurymela* resemble genera comprised in the Ipoini rather than those in the Eurymelini. It is included in the last named tribe because of the characters furnished by the male genitalia; in particular the presence of a well developed ventral accessory clasping process associated with the sub-genital plates.

Aloeurymela gearyi Evans

(Fig. 12, D1, D2)

Aloeurymela gearyi Evans, 1965, Proc.Linn.Soc.N.S.W. 90: 86.

Length, ♂, ♀, 4·8 mm. General appearance long and narrow, sometimes with a characteristic diamond-shaped marking on the folded tegmina. Face of head pale apricot, or dark brown, mottled with yellow; lora and maxillary plates, pale brown. Crown and pronotum, pale or dark brown, or black, mottled with pale brown or greyish-white. Scutellum concolorous with the pronotum but a darker shade. Tegmen basally concolorous with the crown of head and thorax, with 2 irregular transverse whitish fasciae, which may be confluent on the costal area. Male genitalia as in Figure 12, D1, D2. (The aedeagus may have an additional spine).

Type Location—Australian Museum.

Type Locality—Cunnamulla, Queensland.

Known distribution elsewhere—Perth (Western Australia); Gilruth, Moolooka (Queensland); Walgett (New South Wales).

Aloeurymela langfieldi sp. nov.

(Fig. 12, C1, C2)

Length, ♂, ♀, 4 mm. Face of head, lemon yellow, or pale yellow, with brown markings. Pronotum pale buff mottled with pale brown, posteriorly narrowly whitish. Scutellum pale buff, with a broad, central, longitudinal, and triangular lateral, dark brown markings. Tegmen with a broad irregular whitish transverse hyaline fascia parallel with the sides of the scutellum, broadly bordered on each side with a hyaline coffee-brown area; apically transparent or, pale brownish-hyaline. Male genitalia as in Figure 12, C1, C2.

Holotype ♂ and *Allotype* ♀ from Kimberley Research Station, N.W. Australia (coll. E. Langfield 9/57). In the Australian National Insect Collection, Canberra.

Eurymelessa Evans

Eurymelessa Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 88.

The head is approximately oval in shape and the ante-clypeus is anteriorly narrowly depressed. The antennal ledges, which are well-defined, extend almost as far as the eyes on each side. The crown of the head is widest against the eyes. The hind tibiae have 3 spurs decreasing in size from the apex to the base and numerous spines.

Type species—*Eurymeloides moruyana* Distant.

Eurymelessa moruyana (Distant)

(Fig. 12, G1, G2)

Eurymeloides moruyana Distant, 1917, Ann.Mag.Nat.Hist. 20: 188.

Eurymelessa froggatti Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 88 (syn. nov.).

Length, ♂, ♀, 6-7 mm. Head black, but for the hind margin of the vertex, which is broadly ochreous. Vertex of head, and pronotum, ochreous or black. Scutellum black. Tegmen black, or brown shading to black, with a broken posterior, hyaline, white fascia; sometimes also with a few anterior pale spots. Legs pale brown. Male genitalia as in Figure 12, G1, G2.

Type Location—British Museum.

Type Locality—Moruya, New South Wales.

Known distribution elsewhere—Eltham, Blackburn (Victoria); Barrington Tops, Dorrigo, National Park (New South Wales); Binna Burra (Queensland).

Dremuela gen. nov.

The face of the head is wider than long and anteriorly recurved. The antennal ledges, which are short, are well defined and there is a deep depression below the antennae. The labium terminates between the middle coxae. The fronto-clypeus is medially flat and laterally depressed. The crown is narrow and wider against the eyes than in the centre. The venation of the tegmen is not reticulate. The fore and middle femora have short and slender spines on their ventral margins and the hind tibiae have 1 spur and several additional spines.

The sub-genital plates lack ventral styles, but have triangular processes developed from the infolding of their dorsal margins.

Type species—*Dremuela hieroglyphica* sp. nov.

Dremuela differs from other genera of the Eurymelini in the characters furnished by the sub-genital plates.

Dremuela hieroglyphica sp. nov.

(Fig. 12, E1, E2)

Length, ♂, 6, ♀, 7 mm. General coloration black, with delicate white markings on the tegmen.

Face rugose, black, the outer margins of the lora and the ante- and fronto-clypeus, in part, coffee-brown. Pronotum and scutellum shining black, but for the pronotum antero-laterally and the scutellum posteriorly, brown. Tegmen shining black; veins 1A and 2A

apically white. An oblique, narrow, sinuate fascia extending from the apex of the scutellum to the costal margin. Distal of the costal apex of this fascia, a series of small, round, hyaline white spots lying between R and the costal margin. Further distally, an arcuate broken narrow hyaline white fascia. Abdomen, ventral surface and legs, brown. Male genitalia as in Figure 12, E1, E2. The sub-genital plates are broad and laterally flattened.

Holotype ♂ and *Allotype* ♀ from Stoughton Vale, Victoria (coll. H. Tarr, 4/48), in the National Museum of Victoria. Additional specimens from Mittagong, New South Wales

Eurymelita Evans

Eurymelita Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 89.

The ante-clypeus and lora are recurved anteriorly. The maxillary plates are at a lower level than the vertex. The tegmina are apically broad. The front femora have a large spur, the middle femora 3 smaller spurs and the hind tibiae have 2 spurs and numerous strong, short spines. In the male genitalia the paramercs are unusually short, and the sub-genital plates lack ventral, but have dorsal, accessory styles.

Type species—*Eurymela terminalis* Walker.

Eurymelita terminalis (Walker)

(Fig. 12, F1, F2)

Eurymela terminalis Walker, 1851, List.Homopt.Brit.Mus. 3: 642.

Eurymelita terminalis (Walker) Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 89.

Length, ♂, ♀, 9 mm. Head black with whitish maxillary plates; fronto-clypeus rufous brown, or with a white, brown and black pattern. Pronotum and scutellum black with the hind margins sometimes brown. Tegmen black, sometimes brown, with 2 narrow transverse, white, cream, or dull pink fasciae. The anterior fascia terminates close to the apex of the scutellum. Male genitalia as in Figure 12, F1.

Type Location—British Museum.

Type Locality—Adelaide, South Australia.

Known distribution elsewhere—Belabula, Finley, Wardell (New South Wales); Dalby (Queensland); Naroona, Nerrogin, Swan River (Western Australia).

Eurymeloides Kirkaldy

Eurymeloides Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 351.

Eurymelias Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 29.

Eurymeloides Kirkaldy, Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 83.

This genus is closely related to *Eurymelessa*, differing principally in the shape of the aedeagus. The face of the head is slightly convexly rounded and the crown is only visible narrowly against the eyes. The hind tibiae have spurs on 2 adjacent edges; on one, in which they are widely spaced, there are 3, 4, or 5 spurs, decreasing in size from the apex to the base; on the other on which the spurs are more closely set, there are from one to 4 large spurs. The male genitalia have broad sub-genital plates with ventral styles. In this genus the shape of the aedeagus is regarded as the principal feature indicating generic relationship, the armature of the hind tibiae being of secondary importance.

Type species—*Eurymela bicincta* Erichson.

Key to the Species in the Genus Eurymeloides

1. Insects predominantly black with, or without, white or coloured markings 2
   Insects not predominantly black 9

2. (1) Apart from black, predominantly yellow or orange in colour 3
   Apart from black, yellow, or orange, not predominant 5

3. (2) Insects less than 8 mm. in length 4
   Insects at least 10 mm in length ..... **pulchra** (Signoret)

4. (3) Insects 6 mm in length with a yellow and black longitudinally-striped appearance ..... **perpusilla** (Walker)
   Insects 7 mm in length, lacking a longitudinally striped appearance (Western Australia only) ..... **walkeri** Distant

5. (2) Insects more than 6 mm in length 6
   Insects less than 6 mm in length ..... **minutum** Evans

6. (5) Insects 8 or 9 mm in length; abdomen usually scarlet ..... **lineata** (Signoret)
   Insects either less, or more, than 8 or 9 mm; abdomen not scarlet 7

7. (6) Insects never more than 8 mm in length 8
   Insects 10 mm in length, predominantly black; eyes red (New Guinea) ..... **nigra** Evans

8. (7) Insects 6-7 mm in length, usually with 2 narrow white, transverse, tegminal fasciae ..... **bicincta** (Erichson)
   Insects 7 mm in length, with irregular pale tegminal markings (a very variable species) ..... **punctata** (Signoret)

9. (1) Insects less than 8 mm in length 10
   Insects 9 mm in length ..... **adspersa** (Signoret)

10. (9) Insects 5 mm in length 11
    Insects 7 mm in length 13

11. (10) Hind tibia with 3 large and 1 small spur on the margin bearing widely spaced spurs 12
    Hind tibia with 5 appreciable spurs (New Guinea) ..... **kalimensis** Evans

12. (11) Tegmen with indistinct transverse fasciae; male genitalia as in Figure 12, S1, S2 (Australia) ..... **musgravei** sp. nov.
    Tegmen lacking fasciae; male genitalia as in Figure 12, Q (New Guinea) ..... **sogerensis** Evans

13. (10) Hind tibia with total of 4 spurs on 2 edges ..... **nigrobrunnea** Evans
    Hind tibia with a total of 7 spurs on 2 edges ..... **marmorata** (Burmeister)

Eurymeloides bicincta (Erichson)

(Fig. 12, I1, I2)

Eurymela bicincta Erichson, 1842, Archiv.Naturgesch, 8: 286.

Eurymeloides bicinctellus Kirkaldy, 1906, Bull.Hawaii.Sug.Ass.Exp.Sta. 1 (9): 352.

Eurymeloides bicincta (Erichson), Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 83.

Length, ♂, 6·5, ♀, 7 mm. Head largely brown or black. Pronotum black, brown, yellow or orange, sometimes with the hind margin white. Scutellum usually concolorous with the pronotum, but sometimes black when the pronotum is orange. Tegmen black, with 2 white fasciae, the anterior extending from close to the apex of the scutellum to approximately the centre of the costal margin; the posterior from the apex of the claval suture transversely to the costal border. Hind tibia with 3 large and 2 small spurs on 1 edge and two on another. Male genitalia as in Figure 12, I1, I2.

Type Location—Unknown.

Type Locality—Tasmania.

Known distribution elsewhere—Leura, Tubrabucca (New South Wales); Toowoomba, Brisbane (Queensland); Adelaide (South Australia); Shepperton (Victoria).

Eurymeloides pulchra (Signoret)

(Fig. 12, H1, H2, U)

Eurymela pulchra Signoret, 1850, Ann.Soc.Ent.Fr. (2) 8: 508.

Eurymela discifera Walker, 1851, List.Homopt.Brit.Mus. 3: 641

Eurymeloides hyacinthus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 351.

Eurymeloides pulchra (Signoret), Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 83.

Length, ♂, 10-10·5 mm; ♀, 11 mm. Head, ante-clypeus, fronto-clypeus medially and vertex, except for an orange median longitudinal stripe, black; maxillary plates, lora and fronto-clypeus laterally orange, or straminaceous, entirely black, or entirely orange. Scutellum anteriorly black, posteriorly yellow or orange. Tegmen black, with 2 yellow, pinkish, or whitish, transverse fasciae. The anterior fascia, which may be lacking, is usually in 2 separate parts, the posterior one narrowly wedge-shaped. Hind tibia with 5 spurs on 1 edge and 3 large and 2 small spurs on the adjacent one. Male genitalia as in Figure 12, H1, H2.

Type Location—Natural History Museum, Vienna.

Type Locality—New Holland.

Known distribution elsewhere—Cairns, Maryborough, Brisbane (Queensland); Sydney (New South Wales); Adelaide (South Australia); Lake Hattah (Victoria).

Eurymeloides punctata (Signoret)

(Figs. 6, D; 8, B; 12, K)

Eurymela punctata Signoret, 1850, Ann.Soc.Ent.Fr. (2) 8: 511.

Eurymela trifasciata Signoret, 1850, Ann.Soc.Ent.Fr. (2) 8: 512.

Eurymela ocellata Signoret, 1850, Ann.Soc.Ent.Fr. (2) 8: 511.

Eurymela varia Walker, 1851, List.Homopt.Brit.Mus. 3: 644.

Eurymeloides ornatus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 352 (syn. nov.).

Eurymeloides cumulosus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 351.

Eurymeloides testaceus Distant, 1908, Ann.Soe.Ent.Belg. 52: 101.

Eurymeloides atromaculatus Distant, 1908, Ann.Soe.Ent.Belg. 52: 103.

Eurymeloides punctata (Signoret), Evans, 1933, Trans.Roy.Soe.S.Aust. 57: 84.

Eurymeloides motuana Evans, 1947, Trans.Roy.Soe.S.Aust. 71: 225 (syn. nov.).

Eurymeloides nigrobrunnea Evans, 1947, Trans.Roy.Soe.S.Aust. 71: 225 (syn. nov.).

Length, ♂, 6-7 mm; ♀, 8-9 mm. Head and pronotum black, mottled with yellow, pale brown mottled with yellow, or dark brown mottled with white. Scutellum concolorous with the pronotum, or with black or brown markings, or entirely black or brown. Tegmen usually black, sometimes pale or dark brown. There may be 2 incomplete, or complete, whitish or hyaline fasciae, the anterior oblique and the posterior transverse; sometimes a third median fascia is present; clavus frequently mottled with white or light brown; termination of anal veins usually white. Hind tibia with 3 large and 2 small spurs on 1 edge and 2 large and 1 small spur on the adjacent one. Male genitalia as in Figure 12, K.

Type Location—Natural History Museum, Vienna.

Type Locality—"Australia".

Known distribution elsewhere—Perth, Port George (Western Australia); Adelaide (South Australia); Seven Mile Beach (Tasmania); Canberra (A.C.T.); Brisbane, Ravenshoe (Queensland); Melbourne (Victoria); Sydney (New South Wales); Port Moresby (New Guinea).

Eurymeloides adspersa (Signoret)

(Fig. 12, M)

Eurymela adspersa Signoret, 1850, Ann.Soe.Ent.Fr. (2) 8: 510.

Eurymeloides adspersa (Signoret), Evans, 1933, Trans.Roy.Soe.S.Aust. 57: 87.

Length, ♂, 9 mm. A narrow drab insect, not typically eurymeline in appearance. Head, pronotum and scutellum black mottled with reddish brown and yellow. Tegmen unusually long, dark brown, or black, with yellowish and whitish irregular markings, sometimes arranged so as to form 3 indistinct fasciae. Hind tibia with 3 large and 2 small spurs on one edge and 2 large and 1 small spur on the adjacent edge. Male genitalia as in Figure 12, M.

Type Location—Unknown.

Type Locality—New Holland.

Known distribution elsewhere—New Guinea.

Eurymeloides nigra Evans

Eurymeloides nigra Evans, 1933, Trans.Roy.Soe.S.Aust. 57: 88.

Length, ♀, 10 mm. Head black, but for the external margins of the maxillary plates, lora and fronto-clypeus, which are white or testaceous. Eyes bright red. Pronotum and scutellum black. Tegmen black with a wedge-shaped posterior white fascia and sometimes with small anterior white markings. Hind tibia with 3 large and 4 small spurs on 1 edge and 4 spurs on the adjacent margin.

Type Location—South Australian Museum.

Type Locality—Port Moresby, New Guinea.

Known distribution elsewhere—Donadobu, New Guinea.

None of the numerous available specimens of this species is a male. However, it is distinctive and can readily be identified. It is very probably derived from *Eurymeloides pulchra*.

Eurymeloides perpusilla (Walker)

(Fig. 12, J)

Eurymela perpusilla Walker, 1858, Ins.Saund,Homopt. 83.

Eurymeloides perpusilla (Walker), Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 86.

Length, ♂, ♀, 6 mm. A small distinctive species, black with longitudinal yellow stripes. Head, maxillary plates, lora and fronto-clypeus externally, yellow; remainder black. Pronotum black, laterally yellow. Scutellum black. Tegmen black with a broad crescentic longitudinal yellow fascia, extending from the base of the tegmen to the costal margin opposite the termination of vein 1A; also a posterior wedge-shaped transverse fascia; other markings may also be present on the tegmen. Hind tibia with 2 large and 3 small spurs on one edge and 2 spurs on the adjacent edge. Male genitalia as in Figure 12, J.

Type Location—British Museum.

Type Locality—"New South Wales".

Known distribution elsewhere—Tambourine Mountains (Queensland); Maroota (New South Wales).

Eurymeloides kalimensis Evans

(Fig. 12, R)

Eurymeloides kalimensis Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 48.

Length, ♂, 7 mm. Head, pronotum and scutellum pale brown mottled with dark brown. Tegmen hyaline brown with 2 broad transverse white fasciae. Hind tibia with 5 spurs on 1 margin and three on the adjacent one. Male genitalia as in Figure 12, R.

Type Location—Australian Museum.

Type Locality—Bioto-Kabimu Road, New Guinea (at the time of description Kabimu was read on the label as "Kalima" and it was not appreciated that the locality was a New Guinea one).

Eurymeloides minutum Evans

(Fig. 12, O)

Eurymeloides minutum Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 87.

Length, ♂, 5 mm. Head black, mottled with yellow and brown. Pronotum black, with a few scattered small yellow spots. Scutellum black. Tegmen, very dark shiny brown or almost black, sometimes with a narrow ribbon-like transverse white fascia, or white marking, and invariably with a posterior transverse white fascia. Clavus sometimes spotted with yellow; a number of round pale spots against the costal margin. Hind tibia with 3 large and 1 small spur on one edge and 1 large and 1 small spur on the adjacent margin. Male genitalia as in Figure 12, O.

Type Location—Australian Museum.

Type Locality—Gosford, New South Wales.

Known distribution elsewhere—Adelaide (South Australia).

Eurymeloides lineata (Signoret)

(Fig. 12, P)

Eurymela lineata Signoret, 1850, Ann.Soc.Ent.Fr. (2) 8: 509.

Eurymela livida Walker, 1851, List.Homopt.Brit.Mus. 3: 642.

Eurymela decisa Walker, 1851, List.Homopt.Brit.Mus. 3: 643.

Eurymeloides lineata (Signoret), Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 84.

Length, ♂, 8, ♀, 9 mm. A highly variable species. Head black, fronto-clypeus red, or pinkish, with a central longitudinal black stripe; coronal suture pinkish. The maxillary plates may be narrowly bordered with white, the lora externally testaceous, and a pale area may be present anterior to each antenna or the head may be almost entirely red. Pronotum black, sometimes with a median red longitudinal stripe and sometimes edged posteriorly with white, or entirely red. Scutellum black, sometimes posteriorly red. Tegmen black, veins frequently white or pinkish; a posterior white, wedge-shaped fascia and sometimes also a narrow anterior broad, or narrow pale fascia. Hind tibia with 3 large and 2 small spurs on 1 edge and 4 spurs on the adjacent edge. Legs, coxae and femora in part red, remainder of femora, tibiae and tarsi, black, except first tarsal segment which is in part white. Abdomen red. Male genitalia as in Figure 12, P.

Type Location—Natural History Museum, Vienna.

Type Locality—"Australia".

Known distribution—Warburton, Eltham, Mt Buffalo (Victoria); Adelaide (South Australia); Swan River (Western Australia); Numinbah (Queensland); Mt Kosciusko (New South Wales).

Eurymeloides marmorata (Burmeister)

(Fig. 12, N)

Eurymela marmorata Burmeister, Genera Insectorum, 1838-45.

Bythoscopus nigro-oeneus Walker, 1851, List.Homopt.Brit.Mus. 3: 867.

Eurymeloides zonatus Distant, 1908, Ann.Soc.Ent.Belg. 52: 104.

Eurymeloides marmorata (Burmeister), Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 86.

Length, ♂, 7 mm. Head black mottled with light or dark brown. Pronotum light brown mottled with black and dark brown. Scutellum black sometimes with pale markings posteriorly. Tegmen usually brown, sometimes blackish with 2 indistinct, irregular yellowish or reddish, transverse fasciae; also numerous small pale markings which, together with the fasciae, may occupy at least half the area of the tegmen. Hind tibia with 3 large spurs and 2 small ones on 1 edge and 2 spurs on the adjacent edge. Male genitalia as in Figure 12, N.

Type Location—Unknown.

Known distribution—Lilydale, Warburton (Victoria); Tooloom (New South Wales).

Eurymeloides sogerensis Evans

(Fig. 12, Q)

Eurymeloides sogerensis Evans, 1947, Trans.Roy.Soc.S.Aust. 71: 225.

Length, ♂, 5 mm. Head evenly dark brown, outer margins of lora and maxillary plates, cream. Pronotum brown mottled with pale greyish brown. Scutellum, dark brown.

Tegmen dark brown irregularly mottled with dark grey. Hind tibia with 3 large and 1 small spur on 1 edge and 1 large and 1 small spur on the adjacent edge. Male genitalia as in Fig. 12, Q.

Type Location—British Museum.

Type Locality—Sogeri, New Guinea.

Eurymeloides walkeri Distant

(Fig. 12, T)

Eurymeloides walkeri Distant, 1908, Ann.Soc.Ent.Belg. 52: 102.

Eurymeloides walkeri Distant, Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 87.

Length, ♂, 7·5 mm. Head bright egg-yellow, fronto-clypeus medially and vertex in part black. Pronotum bright yellow with black markings laterally and a pair of median black longitudinal stripes. Scutellum black, apex and markings on disc, yellow. Tegmen black with an irregular broken anterior oblique white fascia and a broken transverse, hyaline, whitish fascia. Hind tibia with 3 spurs on one edge and 2 spurs on the adjacent edge. Male genitalia as in Figure 12, T.

Type Location—British Museum.

Type Locality—Albany, Western Australia.

Known distribution elsewhere—Swanbourne (Western Australia).

Eurymeloides musgravei sp. nov.

(Fig. 12, S1, S2)

Length, ♂, 4·2, ♀, 6 mm. Face of head black, mottled with brown; ante-clypeus dark brown, lora pale brown, maxillary plates brindled. Pronotum brown mottled with pale brown. Scutellum concolorous with pronotum but a darker shade. Tegmen dark brown with circular pale markings and with 2 irregular pale white, or hyaline, fasciae. The anterior fascia may be less distinct than the posterior one. Vein 1A apically white. Hind tibia with 3 large and 1 small spur on one margin and two on another. Male genitalia as in Figure 12, S1, S2.

Holotype ♂ and *Allotype* ♀ from Kurrajong, New South Wales (coll. A. Musgrave 12/54) in the Australian Museum.

Known distribution elsewhere—Black Mt (A.C.T.); Mt Macedon (Victoria).

Pauroeurymela Evans

Pauroeurymela Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 79.

The fronto-clypeus is evenly convexly rounded, the lora and ante-clypeus recurved apically and the antennal ledges, which extend two-thirds of the distance between the fronto-clypeus and the eyes, distinct. The crown of the head is only visible narrowly against the eyes. The tegmina are apically broad, the appendix small and the venation usually apically reticulate, though there may be large well-defined apical cells. The hind tibiae have 2 large spurs and a third considerably smaller one.

Type species—*Eurymela amplicincta* Walker.

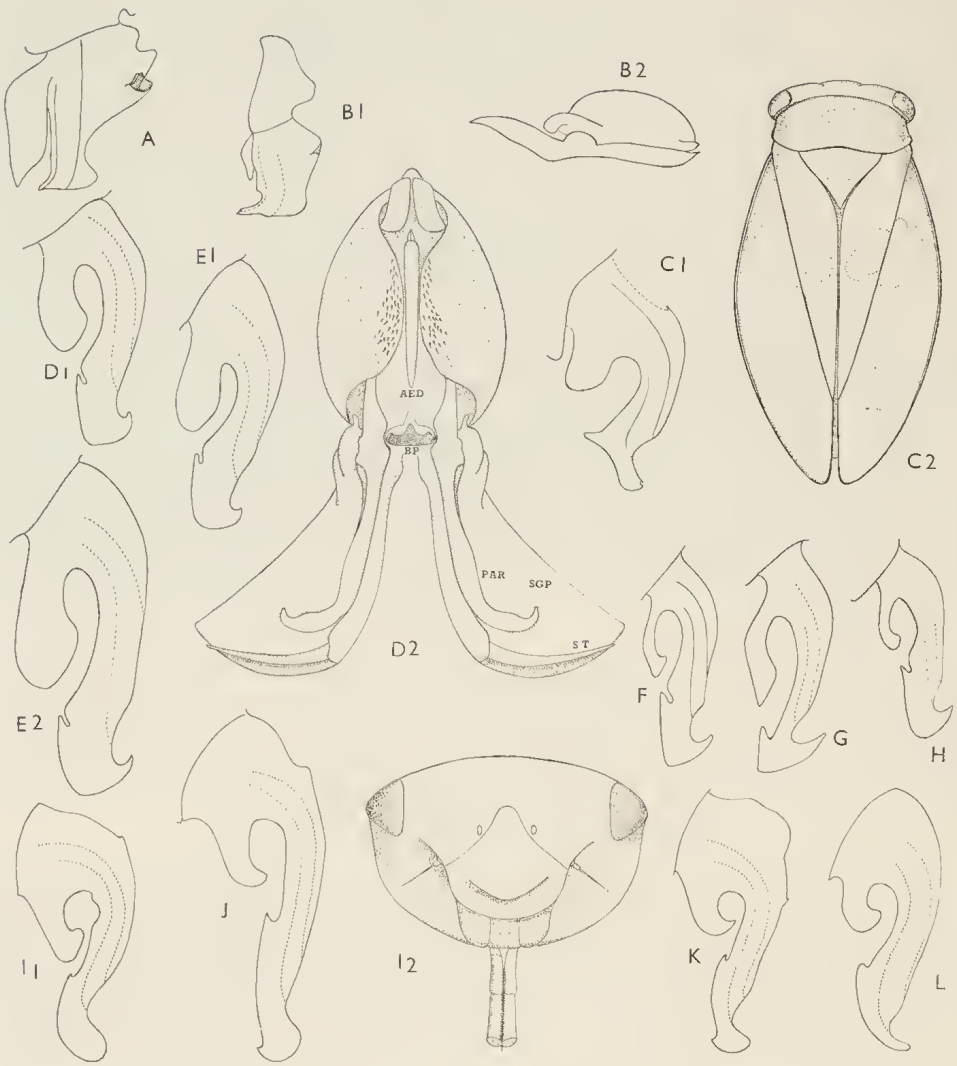


Fig. 13: A, *Pauroeurymeta amplicincta*, aedeagus; B1, *Pauroeurymela parva*, aedeagus; B2, *P. parva*, subgenital plate and paramere; C1, *Platyeurymela semifascia*, aedeagus; C2, *P. semifascia;* D1, *Eurymela fenestrata*, aedeagus; D2, *E. fenestrata*, male genitalia; E1, 2, *E. distincta*, aedeagus; F, *E. erythrocnemis*, aedeagus; G, *E. rubrolimbata*, aedeagus; H, *E. bakeri*, aedeagus; I1, *Eurymelops bicolor*, aedeagus; I2, *E. bicolor*, face of head; J, *E. generosa*, aedeagus; K, *E. rubrovittata*, aedeagus; L, *E. latifascia*, aedeagus. AED, aedeagus; PAR, paramere; SGP, subgenital plate; ST, style.

Pauroeurymela amplicincta (Walker)

(Fig. 13, A)

Eurymela amplicincta Walker, 1858, Ins.Saund.Homopt. 84.

Pauroeurymela amplicincta (Walker), Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 79.

Broadly wedge-shaped insects. Length, ♂, 5, ♀, 7 mm. Head pronotum and scutellum pilose. Head black, maxillary plates, white. Pronotum black with the hind margin narrowly white, or olive, or entirely olive. Scutellum black. Tegmen black with a

narrow fulvous margin with 2 grey, yellowish-brown or white fasciae; anterior fascia broad, transverse; posterior fascia considerably narrower and wedge-shaped. Legs reddish-brown. Male genitalia as in Figure 13, A.

Type Location—British Museum.

Type Locality—New South Wales.

Known distribution—Lawson (New South Wales); Croydon, Heathmont (Victoria).

Pauroeurymela parva Evans

(Fig. 13, B)

Pauroeurymela parva Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 79.

Narrowly wedge-shaped insects. Head and thorax smooth. Length, ♂, 7, ♀, 8 mm. Head black. Pronotum black, hind margin sometimes reddish. Scutellum black. Tegmen black edged with fulvous, with a broad, or narrow, transverse white, or yellowish-brown, fascia and with a small pale area close to the costal margin posteriorly. Legs light or dark brown. Male genitalia as in Figure 13, B.

Type Location—Australian Museum.

Type Locality—Katoomba, New South Wales.

Known distribution elsewhere—Bulli Lookout, Tubrabucca (New South Wales).

Platyeurymela Evans

Platyeurymela Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 78.

Insects oval in outline. The head is globosely convex and in 2 planes, at right angles with each other. The antennal ledges are distinct and extend as far as the eyes on each side. The crown of the head is broadly visible against the eyes and medially declivous. The tegmina are apically rounded, the appendices small and the venation reticulate. The front femora bear 2 rows of small spurs on their inner sides and the hind tibiae have a single spur.

Type species—*Eurymela semifascia* Walker.

Platyeurymela semifascia (Walker)

(Fig. 13, C1, C2)

Eurymela semifascia Walker, 1851, List.Homopt.Brit.Mus. 3: 643.

Eurymela tasmani Distant, 1908, Ann.Soc.Ent.Belg. 52: 106.

Platyeurymela semifascia (Walker), Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 78.

Eurymela atra Walker, 1851, List.Homopt.Brit.Mus. 3: 645 (syn. nov.).

Length, ♂, ♀, 8 mm. Head black, maxillary plates sometimes narrowly margined with white. Pronotum black, hind margin narrowly white. Tegmen, black, bordered with rufous, usually with 2 transverse white fasciae which extend across the tegmen and may be narrow, or wide, or confluent. Male genitalia as in Figure 13, C1.

Type Location—British Museum.

Type Locality—New Holland.

Known distribution—Noogee, Gippsland, Fern Tree Gully (Victoria); also known to occur in Tasmania, South Australia and New South Wales.

Eurymela Le Pelletier and Serville

Eurymela Le P. and S., 1825, Encyc.Meth. 10: 604.

Eurymela Le P. and S., Signoret, 1850, Ann.Soc.Ent.Fr. (2) 8: 503.

Wedge-shaped insects 6-14 mm in length comprised in 2 species groups. In one, the *E. fenestrata* complex, the size range is from 10-14 mm in length and from 4-5 mm in greatest width. In the other group, the size range is from 6·5-11 mm in length, and from 2·8-4 mm in greatest width. The shape of the posterior tegminal fascia would seem to present a constant distinguishing feature between insects in the two groups. In the first group, if present, it varies in shape but is never crescent-shaped. In the second it is invariably present and is always crescent-shaped.

General coloration, dorsal surface, brown or black, sometimes with a metallic sheen. The tegmina may have pale yellowish, whitish or greyish fasciae.

On the face of the head the labium extends to between the middle coxae, and the anterior margin of the head, comprising part of the ante-clypeus, lora and maxillary plates, lies at right-angles to the remainder of the same sclerites. The outer margin of the maxillary plates is raised into a distinct rim. The fronto-clypeus is anteriorly convex and posteriorly flat; the antennal ledges, which are strongly developed, extend almost as far as the eyes and the vertex is flat.

The crown of the head is only developed narrowly against the eyes. The pronotum is slightly declivous and the propleurae separate the eyes from the bases of the tegmina. The scutellum, which is large, is longer than the pronotum and extends laterally to behind the eyes. The tegmina are eleytra-like with shallow pits and the venation of the apical third is reticulate.

The fore femora have 5 or 6 peg-like spurs on their inner margins and the hind tibiae have a single prominent spur on the ventral anterior edge, a smaller spur, and a few widely spaced small spines on the inner posterior edge and on the dorsal anterior edge.

The male genitalia have large boat-shaped sub-genital plates. The parameres, which are apically hooked and horizontal, extend beyond the aedeagus, and styles are present along the posterior half of the ventral margin of the sub-genital plates; these are dorsally directed and approximately at right-angles to the parameres.

Type species—*Eurymela fenestrata* Le Pelletier and Serville.

Key to Species in the Genus Eurymela

1. Insects over 10 mm in length; abdomen never black in colour.....2
   Insects less than 10 mm in length; abdomen largely black 3
2. (1) Insects predominantly brown in colour; abdomen not scarlet..... ..... **fenestrata** Le P. & S.
   Insects predominantly bluish-black in colour; abdomen scarlet.. **distincta** Signoret
3. (1) Insects more than 7 mm in length 4
   Insects 7 mm or less in length ..... **bakeri** Evans

4. (3) Insects 9 mm in length; pronotum often in part olive; anterior tegminal fascia frequently in 2 parts ..... **rubrolimbata** Kirkaldy

Insects 8 mm in length; pronotum never in part olive; anterior fascia usually not in 2 parts ..... **erythrocnemis** Burmeister

Previously 9 described forms have been placed under the name of the type species, although it was recognised that they could be separated into 2 groups which were described as the "Brown" and the "Black Group" respectively (Evans, 1933). In the same paper illustrations were given of fifteen of the colour pattern forms of insects in the "Brown Group".

Further consideration suggests that it is preferable to recognise these 2 groups of eurymelids as each representing a separate species and this course is followed below.

Eurymela fenestrata Le Pelletier and Serville

(Figs. 3, A; 13, D1, D2)

Eurymela fenestrata Le P. and S., 1825, Encyc.Meth. 10: 604.

Eurymela ruficollis Burmeister, 1838-45, Genera Insectorum.

Eurymela discoidalis Signoret, 1850, Ann.Soc.Ent.Fr. (2) 8: 505.

Eurymela suffusa Walker, 1851, List.Homopt.Brit.Mus. 3: 640.

Eurymela plebeia Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 355.

Eurymela subnigricans Distant, 1908, Ann. Soc.Ent.Belg. 52: 105.

Eurymela fenestrata Le P. and S., Evans, 1933. Trans.Roy.Soc.S.Aust. 57: 75.

Length, ♂, 10-11 mm, ♀, 11-12·5 mm. Head orange-rufous or dark brown, marked with a pattern of both colours; maxillary plates cream. Pronotum and scutellum, apricot-orange, orange-rufous or dark purplish-brown, or marked with a pattern of orange and brown. Tegmen, anterior costal margin rufous or yellowish; remainder dark brown or dark purplish-brown except for anterior and posterior whitish circular markings, or fasciae, which may be present or absent. Abdomen, ventral surface, pale or dark ochreous. Male genitalia as in Figures 13, D1, D2.

Type Location—Unknown.

Known distribution—Tully, Brisbane, Endeavour River (Queensland); Gosford, Port Stephens, Sydney, Como (New South Wales); Swan River (Western Australia).

Eurymela distincta Signoret

(Fig. 13, E1, E2)

Eurymela distincta Signoret, 1850, Ann.Soc.Ent.Fr. (2) 8: 506.

Eurymela vicina Signoret, 1850, Ann.Soc.Ent.Fr. (2) 8: 506.

Eurymela speculum Walker, 1851, List Homopt.Brit.Mus.3: 641.

Eurymela lubra Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 355.

Length, ♂, 10-12 mm; ♀, 12-14 mm. Head black, but for the maxillary plates, which are white or cream. Pronotum and scutellum black. Tegmen bluish or purplish-black, usually with one, two, or three whitish fasciae; costal margin black. Legs, coxae and femora

proximally scarlet, remainder black. Thorax and abdomen, ventral surface scarlet. Male genitalia as in Figure 13, E1, E2.

Type Location—Unknown.

Known distribution—Hobart (Tasmania); Sydney, Bombala (New South Wales); Nunawading (Victoria).

Eurymela erythrocnemis Burmeister

(Fig. 13, F)

Eurymela erythrocnemis Burmeister, 1838-45. Genera Insectorium.

Eurymela erythrocnemis Burmeister, Amyot & Serville, 1843, Suites a Buffon. Pl. 10. Fig. 5.

Eurymela erythrocnemis Burmeister, Signoret, 1850, Ann.Soc.Ent.Fr. (2) 8: 507.

Eurymela erythrocnemis Burmeister, Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 76.

Length, ♂, ♀, 8 mm. Head black, maxillary plates broadly or narrowly white. Pronotum black, hind margin sometimes white. Scutellum black, apex sometimes fulvous. Tegmen black; costal and claval margins broadly fulvous; two broad or narrow white fasciae, of which either may be the larger; posterior fascia usually arcuate. Abdomen largely black. Male genitalia as in Figure 13, F.

Type Location—Unknown.

Known distribution—Uralla, Centravale (New South Wales); Eltham (Victoria).

Eurymela rubrolimbata Kirkaldy

(Fig. 13, G)

Eurymela rubrolimbata Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 354.

Eurymela rubrolimbata Kirkaldy, Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 76.

Length, ♂, 8-9 mm; ♀, 10 mm. Head black, maxillary plates, broadly, or narrowly, white. Pronotum black, sometimes posteriorly dull olive, the band of this colour widest medially. Scutellum black. Tegmen bluish or bronzy-black, costal and claval margins fulvous; 2 whitish fasciae, the anterior one narrowly oblique and its continuation on the clavus usually not in alignment with the costal part; posterior fascia, broadly or narrowly arcuate. Abdomen, ventral surface black. Male genitalia as in Figure 13, G.

Type Location—H.S.P.A., Honolulu.

Type Locality—Mittagong, New South Wales.

Known distribution elsewhere—Leura, Tubrabucca, Barrington Tops (New South Wales).

Eurymela bakeri Evans

(Figs. 5, J; 13, H)

Eurymela bakeri Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 78.

Length, ♂, 6, ♀, 7 mm. Head black, maxillary plates white. Pronotum black, hind margin sometimes white. Scutellum black. Tegmen black; costal and claval margins fulvous with 2 white, or grey, fasciae; anterior fascia irregular in shape, sometimes extending

onto clavus; posterior fascia arcuate. Abdomen, ventral surface black. Male genitalia as in Figure 13, H.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Canberra, A.C.T.

Known distribution elsewhere—Leura (New South Wales).

There are almost certainly at least 2 other species belonging to this genus, both of which belong to the species-group comprising *E. bakeri*, *E. rubrolimbata* and *E. erythrocnemis*. These have not been described because of present inadequacy of available material.

Eurymelops Kirkaldy

Eurymelops Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 350.

Eurymelops Kirkaldy, Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 80.

Large insects 11-14 mm in length, with a predominantly red and black colour pattern. The fronto-clypeus is produced as a transverse shovel-shaped process which is concave dorsally. As a result, when viewed from above, the eyes appear prominent. The venation of the tegmen is apically reticulate and the hind tibiae have 2 prominent spurs.

Type species—*Eurymela rubrovittata* Amyot and Serville.

Characters distinguishing species in the Genus Eurymelops

Tegmen metallic purplish, sometimes, in part, red ..... **bicolor** (Burmeister)

Tegmen predominantly brick-red, usually with 2 transverse black fasciae.. **generosa** (Stål)

Tegmen black, with 2 transverse red fasciae ..... **rubrovittata** (A. & S.)

Tegmen black, anteriorly reddish-brown, hence with appearance of having 3 transverse red fasciae ..... **latifascia** (Walker)

Eurymelops rubrovittata (Amyot and Serville)

(Fig. 13, K)

Eurymela rubrovittata A. and S. 1843, Hist.Nat.des Ins.Hemipt. 555.

Eurymela rubrofasciata Stål, 1865, Öfvers.Vetensk.Akad.Förh.Stockh. 22: 156.

Eurymelops rubrovitta Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 354.

Eurymelops rubrovittata A. and S., Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 80.

Length, ♂, 13, ♀, 14 mm. Head black, maxillary plates, and narrowly between eyes, red. Pronotum black, posteriorly red. Tegmen, a small area against the costal margin anteriorly and 2 transverse fasciae, red; remainder black. Abdomen, ventral surface red. Male genitalia as in Figure 13, K.

Type Location—Unknown.

Known distribution—Albany, Wilga, Katanning (Western Australia); Canberra (A.C.T.); Tyabb (Victoria); Stanthorpe, Beenleigh (Queensland).

Eurymelops bicolor (Burmeister)

(Fig. 13, I1, I2)

Eurymela bicolor Burmeister, 1838-45, Genera Insectorum.

Eurymela basalis Walker, 1851, List.Homopt.Brit.Mus. 3: 640.

Eurymelops bicolor (Burmeister), Evans, 1933, Trans.Roy.Soc.S.Aust. 57: 82.

Length, ♂, 12, ♀, 14 mm. Head, metallic blue or greenish black; maxillary plates and fronto-clypeus posteriorly, red; sometimes head entirely red. Pronotum bluish or greenish-black, or, black with the hind margin red. Scutellum bluish or greenish-black sometimes with a central red spot. Tegmen entirely metallic greenish or bluish-black, or anteriorly red and posteriorly black, or with some other arrangements of these colours. Abdomen, ventral surface red. Male genitalia as in Figure 13, I1.

Type Location—Unknown.

Known distribution—Lakemba, Cronulla (New South Wales); Brisbane (Queensland). Recorded also from Victoria and South Australia.

Eurymelops latifascia (Walker)

(Fig. 13, L)

Eurymelops latifascia Walker, 1851, List.Homopt.Brit.Mus.3: 639.

Eurymela pascoei Distant, 1908, Ann.Soc.Ent.Belg.52: 106.

Eurymela latifascia (Walker), Evans, 1933, Trans.Roy.Soc.S.Aust.57: 82.

Length, ♂, ♀, 11 mm. Head ochreous, sometimes with a central black area on the fronto-clypeus and another on the vertex. Pronotum black, black with a reddish hind margin, or pale, or dark, ochreous with anterior lateral black areas. Scutellum black. Tegmen black, basally ochreous and with 2 red, or reddish, fasciae which are confluent along the costal margin. Male genitalia as in Figure 13, L.

Type Location—British Museum.

Type Locality—King George's Sound, Western Australia.

Known distribution elsewhere—Orrooro, Prunong, Adelaide (South Australia); Narrogin, Murchison House Station, Katanning (Western Australia); Ovens, Redcliffe, Lake Hattah (Victoria).

This species is very closely related to *E. rubrovittata* and might be better considered as the same species.

Eurymelops generosa (Stål)

(Fig. 13, J)

Eurymela generosa Stål, 1865, Öfvers.Vetensk.Akad.Förh.Stockh. 22: 156.

Eurymela bunda Distant, 1908, Ann.Soc.Ent.Belg. 52: 106.

Eurymelops generosa (Stål), Evans, 1933. Trans.Roy.Soc.S.Aust. 57: 82.

A strikingly handsome insect. Length, ♂, 13, ♀, 15 mm. Head ochreous or reddish-testaceous with irregular bluish-black markings on the fronto-clypeus and vertex. Pronotum and scutellum bluish-black, or testaceous, or a combination of both colours. Tegmen reddish-

testaceous with 2 transverse complete, or incomplete, bluish-black fasciae; apically hyaline brownish-ochreous. Abdomen, ventral surface, reddish-testaceous. Male genitalia as in Figure 13, J.

Type Location—Natural History Museum, Stockholm.

Type Locality—Moreton Bay, Queensland.

Known distribution elsewhere—Mt Edwards, Lawes (Queensland).

Pogonoscopini

Pogonoscopinae China, Trans.Ent.Soc.London 1926: 290.

Pale, or dark, brown insects, with or without, pale markings on the tegmina. Face of the head and sometimes the thorax and tegmina, pubescent. Eyes small, not prominent, the crown and genae confluent behind them. Pronotum posteriorly wider than the head including the eyes. Tegmina moderately coriaceous, reduced (not brachypterous), or fully developed. The femora of all 3 pairs of legs extend laterally beyond the margin of the body and the tibiae of the 2 first pairs of legs are considerably longer than the femora. The tibiae of the hind legs lack spurs and bear numerous fine hairs and usually, in addition, numerous short spines. The males have broad sub-genital plates with short marginal processes and there is but little difference in shape between the aedeagi of the various species in the several genera.

Key to the Genera of the Pogonoscopini

1. Face of head, longer than wide; labium extending beyond hind coxae 2
   Face of head as wide as long; labium extending to between middle coxae .... **Myrmecoscopus** gen. nov.
2. Last ventrite of ♀ medially indented 3
   Last ventrite of female not medially indented ..... **Australoscopus** China
3. Fronto-clypeus and ante-clypeus forming an even curved surface .... **Pogonoscopus** China
   Post-clypeus transversely ridged anteriorly so that the fronto-clypeus and ante-clypeus do not form an even curved surface ..... **Lasioscopus** China

Pogonoscopus China

Pogonoscopus China, 1924, Ann.Mag.Nat.Hist. (9) 14: 529.

Pogonoscopus China, 1926, Trans.Ent.Soc.London, 1926: 292.

The labium is long extending beyond the hind coxae. The face of the head is longer than wide and either hairy or glabrous. The fronto-clypeus is diamond-shaped and the antennal ledges obsolete. The crown of the head is narrowly developed. The scutellum is longer than the pronotum. The tegmina extend slightly beyond, or do not reach as far as, the apex of the abdomen. Cross vein *r-m* may be absent so that R and M 1 + 2 are confluent, or it may be present; accessory cross veins (more than three) may be present between M and Cu1 and the 2 principal branches of M may each branch into 2 veins, or be even further subdivided. The hind tibiae are quadrilateral in section with numerous irregularly spaced spines and hairs. The last abdominal ventrite of the female is medially indentate.
Type species—*Pogonoscopus myrmex* China.

As well as the type species, 3 others have formerly been included in this genus, but only two are recognized here and even these are not well differentiated from each other. All characters which have been used for species separation are unreliable being of a highly variable nature. These include general coloration; presence or absence of shaggy hairs on the face of the head; the nature of the markings on the tegmina; the shape of the last ventrite of the female; the number of teeth on the ovipositor and the shape of the different parts of the male genitalia.

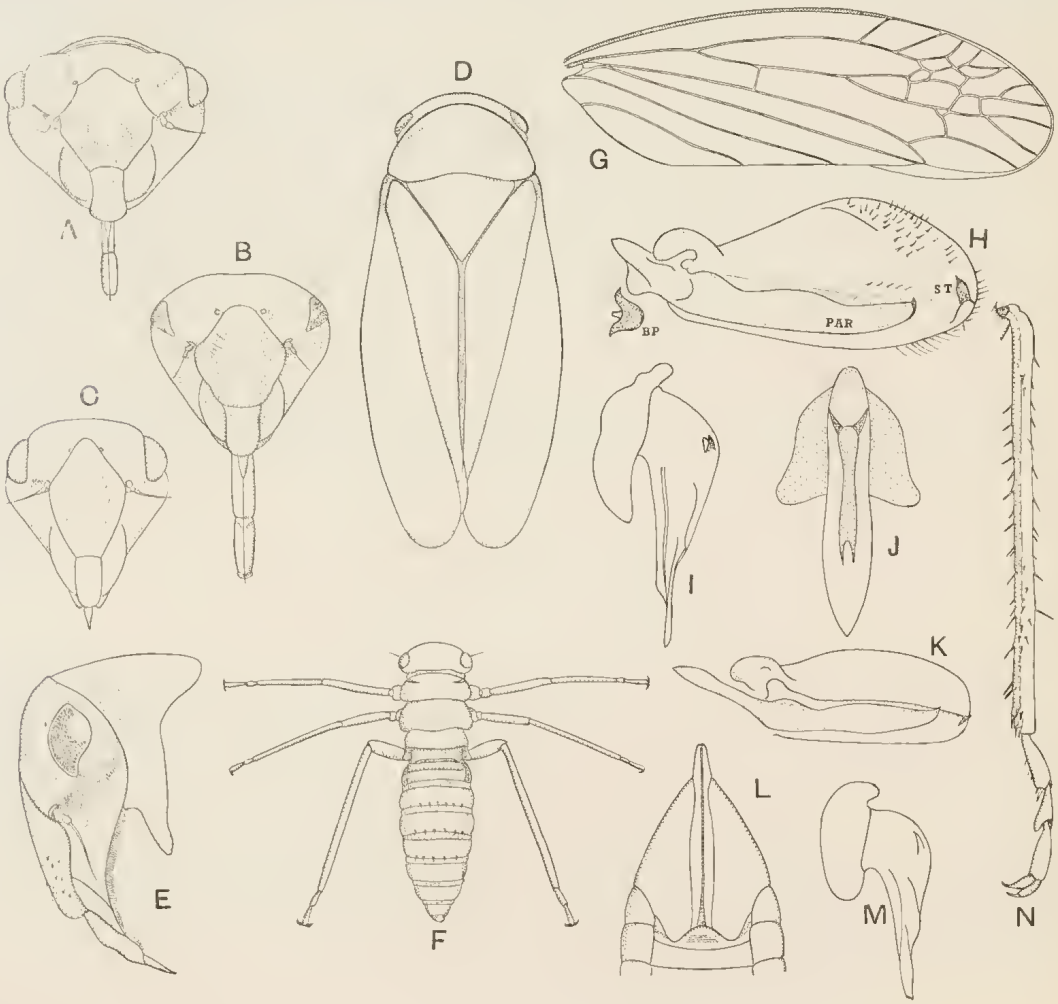
The 2 species that are retained can best be separated by their general appearance rather than by any detailed structural characteristics.

Characters distinguishing species in the Genus Pogonoscopus

General coloration chocolate brown; tegmen always with pale areas which may be more extensive than the dark background ..... **myrmex** China

General coloration pale or dark coffee, or nigger, brown; tegmen usually lacking pale areas, which if present are never extensive ..... **lenis** (Jacobi)

P. myrmex has the appearance, which it has been found impossible to substantiate by measurement, of being a smaller and more fragile insect than the seemingly more substantial *P. lenis*.



Pogonoscopus myrmex China

(Fig. 14, H, I, N)

Pogonoscopus myrmex China, 1924, Ann.Mag.Nat.Hist. (9) 14: 530.

Pogonoscopus myrmex China, 1926, Trans.Ent.Soc.London, 1926: 292.

Width of head across eyes, ♂, 1·8 mm; across hind margin of pronotum, 3 mm. Length of tegmen, ♂, ♀, 5-8 mm. General coloration chocolate brown. Face of head, except vertex, usually with shaggy hairs. Pronotum often considerably wider posteriorly than anteriorly. Tegmen chocolate-brown with anterior and posterior complete or, broken, pale fasciae which may be widely confluent along the costal border. Male genitalia as in Figure 14, H, I.

Type Location—British Museum.

Type Locality—Perth, Western Australia.

Known distribution elsewhere—Busselton, Albany, Lesmurdie, Narrogin (Western Australia); Mt Gambier (South Australia); Kiata (Victoria); in Western Australia recorded from the nests of *Camponotus testaceipes* Smith.

Pogonoscopus lenis (Jacobi)

(Fig. 14, F, G, J)

Eurymeloides lenis Jacobi, 1909, Faun.S.W.Aust.Michaelsen u. Hartmeyer 2: 341.

Pogonoscopus lenis (Jacobi), China, 1926, Trans.Ent.Soc.London, 1926: 293.

Pogonoscopus clarki China, 1926, Trans.Ent.Soc.London, 1926: 293 (syn. nov.).

Pogonoscopus fuscus China, 1926, Trans.Ent.Soc.London, 1926: 293 (syn. nov.).

Width of head across eyes, ♂, 2 mm; across hind margin of pronotum, 3 mm. Length of tegmen, ♂, ♀, 5·8-8 mm.

General coloration pale or dark coffee, or nigger, brown. Face of head with, or without, short hairs. Pronotum either slightly, or considerably, wider posteriorly than anteriorly. Tegmen evenly dark brown, or pale coffee brown, either without pale markings, or else with a small anterior fascia which may be adjacent to another on the clavus, and with, or without, a small pale posterior marking close to the costal border. Male genitalia as in Figure 14, J.

Type Location—Unknown.

Type Locality—Lion Mill, Western Australia.

Known distribution elsewhere—Cannington, Mundaring, Albany, South Perth, Ludlow, in the nests of *Camponotus perthiana* Forel and *C. testaceipes* Smith (Western Australia); Karoonda—Peebringa (South Australia); Grampians (Victoria).

OPPOSITE

Fig. 14: A, *Myrmecoscopus minutus*, face of head; B, *Lasioscopus acmaeops*, head; C, *Australoscopus whitei*, head; D, *A. whitei;* E, *Lasioscopus acmaeops*, head in profile; F, *Pogonoscopus lenis*, second instar nymph; G, *P. lenis*, tegmen; H, *Pogonoscopus myrmex*, subgenital plate and paramere; I, *P. myrmex*, aedeagus; J, *Pogonoscopus lenis*, aedeagus; K, *Australoscopus whitei*, subgenital plate and paramere; L, *A. whitei*, apex of abdomen, ♀; M, *A. whitei*, aedeagus; N, *Pogonoscopus myrmex*, hind tibia and tarsus. BP, basal plate; PAR, paramere; ST, style.

Lasioscopus China

Lasioscopus China, 1926, Trans.Ent.Soc.London, 1926: 294.

The face of the head has short, sparse hairs; the ante-clypeus is at a wide angle to the post-clypeus, which is anteriorly transversely ridged, and bears short, sparse, spines. The vertex is wide, flattened and rugose. The crown of the head is of even width, or widest against the eyes. The tegmina are fully developed and the veins sometimes raised in relief. The venation is simple or else somewhat reticulate. The hind tibiae are quadrilateral in section with hairs and short spines. The last abdominal ventrite of the ♀ is indented.

Type species—*Lasioscopus acmaeops* (Jacobi).

Lasioscopus acmaeops (Jacobi)

(Fig. 14, B, E)

Eurymeloides acmaeops Jacobi, 1909, Faun.S.W.Aust., Michaelsen u. Hartmeyer 2: 340.

Lasioscopus acmaeops (Jacobi) China, 1926, Trans.Ent.Soc.London, 1926: 295.

Width of head across eyes, ♂, 2·5 mm; across hind margin of pronotum, 3 mm. Length of tegmen, ♂, ♀, 7-8 mm. General coloration, even deep nigger brown; tegmina without pale fasciae.

Type Location—Unknown.

Type Locality—Mundaring Weir, Western Australia.

Known distribution elsewhere—Albany, Midland, in nests of *Camponotus testaceipes*, *C. perthiana* and *C. clavipes* Mayr (Western Australia).

Australoscopus China

Australoscopus China, 1926, Trans.Ent.Soc.London, 1926: 296.

The face of the head anteriorly, and the post-clypeus, have short hairs. The vertex is slightly roughened and the crown of the head is of even width or widest against the eyes. The tegmina are fully developed, or short, and the venation sometimes apically reticulate. The hind tibiae are rectangular in section and bear hairs and numerous needle-like spines. The last abdominal ventrite of the ♀ is medially lobe-like.

Type species—*Australoscopus whitei* China.

Australoscopus whitei China

(Fig. 14, K, L, M)

Australoscopus whitei China, 1926, Trans.Ent.Soc.London, 1926: 296.

Width of head across eyes, ♂, 2 mm; across hind margin of pronotum, ♂, 3 mm. Length of tegmen, ♂, ♀, 5-7 mm. General coloration, blotchy brown. Face of head, pale, or dark, brown. Pronotum and scutellum pale coffee, or dark nigger, brown. Tegmen with an irregular and variable pattern of different shades of brown, with, or without, small anterior and posterior pale, but not hyaline fasciae, which may be confluent along the costal margin. Male genitalia as in Fig. 14, K, M.

Type Location—British Museum.

Type Locality—Charlotte Waters to Hamilton Bore, Central Australia.

Known distribution elsewhere—Merredin (Western Australia).

Myrmecoscopus gen. nov.

The head, pronotum and scutellum are finely punctate, with hairs arising from the punctures. The face of the head is as wide as long and the labium terminates between the middle coxae. The anterior half of the ante-clypeus is almost at right angles to the posterior half and the lora, and the post-clypeus medially, are apically swollen. The antennal ledges are well developed and prominent. The crown of the head is wide and declivous and concave medially, and extends anteriorly in front of the eyes. The pronotum, which is two and a half times the length of the crown, and equal in length to the scutellum, is widest posteriorly, and wider posteriorly than the head across the eyes. The tegmina are fully developed, rounded apically, and have small appendices. The hind tibiae lack both spurs and spines but have numerous fine hairs, and the last ventrite of the ♀ is bilobed.

Type species—*Myrmecoscopus minutus* sp. nov.

Myrmecoscopus resembles other genera in the Pogonoseopini in general appearance and coloration and in having small eyes. It differs from them in being considerably smaller in size, and in retaining features lost in representatives of other genera. Thus, the labium is shorter, the face of the head not elongate, and the antennal ledges prominent. Furthermore, although no tibial spurs are retained, tibial spines, which are characteristic of species in all other genera, are lacking.

Myrmecoscopus minutus sp. nov.

(Fig. 14, A)

Length, ♂, 6, ♀, 7 mm; greatest width, ♂, ♀, 1·8 mm; general coloration chocolate brown. Tegmen shining brown.

Holotype ♂ and *Allotype* ♀ from Cannington, Western Australia (27.8.53, coll. R. P. McMillan) in the Western Australian Museum.

Mr P. McMillan of Perth, Western Australia, who has frequently collected pogonoscopids, tells me that they are nearly always found associated with ants belonging to the genus *Camponotus*. These ants build their nests under logs and stones and have tunnels with large entrance holes which are smooth and vertical. The leafhoppers "walk around with a peculiar rolling motion and when escaping just fold their legs and tumble down the shaft."

He further reports, that a fungal growth is frequently present in the parts of ants' nests where pogonoscopids occur. Possibly this grows on the excreta of the insects.

The Family Cicadellidae

This family is the dominant one of the several comprised in the super-family Cicadelloidea. Particulars are given of 125 genera comprising 378 species known to occur in Australia and of 20 genera comprising 38 species in New Zealand.

In the head (Figure 4, A, B, D) the maxillary plates may be wide or narrow; the antennal ledges, if present, may be in alignment with the anterior margins of the eyes, or situated posteriorly to them; the epicranial suture, if present, and the ocelli, may lie either on the face or the crown of the head. The pronotum is seldom enlarged and in those forms in which it is, it is either anteriorly, dorsally, or laterally, but never posteriorly produced. The mesonotum (Fig. 5, D, E) has paired longitudinal unsclerotised areas and is apically acute. In the tegmen, the radius has usually 2 costal branches and the radial sector, which is usually present, is normally incorporated for the greater part of its length with the anterior branch of the media. The media is always basally incorporated in the same vein as the radius. The hind tibiae are variable in shape and usually bear spines, some of which may be mounted on enlarged bases. In the male genitalia, the base of the aedeagus is linked to the paired parameres by a basal connective. The nymphs (of species occurring in Australia), are, like the adults, not attended by ants. In those forms on which the ninth abdominal tergite is narrowly prolonged, the anal segment is not extrusible. Like the adults, the nymphs jump when disturbed.

Key to the Tribes, and to such Sub-families as are not subdivided into Tribes, of the Cicadellidae of the Australasian Region

1. Antennae closer to the anterior than to the posterior corners of the eyes; if nearest the posterior corners, then the antennal ledges extending onto the post-clypeus; ocelli seldom on the crown 17

   Antennae closer to the posterior than to the anterior corners of the eyes; ocelli usually on the crown 2

2. (1) Ocelli marginal, not in depressions, or on the crown close to the anterior border.... 9

   Ocelli in marginal depressions, or on the crown distant from the anterior border .. 3

3. (2) Ocelli in marginal depressions; anal veins forming a Y-vein..... **Stenocotini**

   Ocelli on the crown, or if on the face, posterior to a transverse ridge..... 4

4. (3) Fronto-clypeus considerably swollen; muscle impressions visible in dorsal aspect.. 10

   Fronto-clypeus not considerably swollen, or if swollen, then muscle impressions not visible in dorsal aspect 5

5. (4) Antennae exceptionally long, or, head shovel-shaped, or spatulate..... 11

   Antennae short, or of moderate length; head neither shovel-shaped nor spatulate.. 6

6. (5) Maxillary sutures sometimes distinct; antennal ledges roundly arched; labium long 15

   Maxillary sutures vestigial or absent; antennal ledges not roundly arched; labium short 7

7. (6) Venation of tegmen complete (Figure 19, A2); ante-clypeus apically re-curved; principal mounted spines on hind tibiae decreasing in size from the apex to the base ..... **Thymbrini**

   Tegmen often short; venation seldom complete; ante-clypeus not re-curved apically; hind tibiae lacking prominent spurs 8

8. (7) Genae narrowly emarginate beneath the eyes ..... **Euacanthellini**

   Genae not narrowly emarginate beneath the eyes ..... **Aphrodini**

9. (2) Crown produced, usually narrowly arrow-shaped; crown and pronotum usually carinate ..... **Paradorydiini**

Crown not arrow-shaped, somctimes spatulate; neither crown nor pronotum carinate ..... **Hecalini**

10. (4) Tegmen with a reduced clavus, a wide appendix and lacking vcin M 1 + 2..... ..... **Mileewanini**

Tegmen with a clavus of normal proportions, a narrow appendix and with vein M 1 + 2 present ..... **Cicadellini**

11. (5) Antennae short, or of moderate length ..... **Ledrini**

Antennae unusually long 12

12. (11) Ocelli visible from above 13

Ocelli not visible from above; head broadly laminatcly produced, thickened dorso-ventrally ..... **Stenometopiini**

13. (12) Face of head about as broad as long; crown short, half-ovate; ocelli nearer to eyes than to each othcr ..... **Macroceratogiini**

Not as above, crown of head longest in the centre 14

14. (13) Ocelli nearer to the eyes than to the anterior apex of the crown .....**Nirvanini**

Ocelli nearer to the apex of the head than to the eyes ..... **Occinirvanini**

15. (6) Head triangular in shape or narrowly produced; insects resembling grass seeds ..... **Cephalelini**

Not as above 16

16. (15) Pronotum with lobe-like lateral expansions ..... **Myerslopiini**

Pronotum not laterally produced ..... **Ulopini**

17. (1) Antennal ledges vestigial; face of head never wider than long, nor crown spatulate 29

Antennal ledges distinct, or if indistinct or absent, then the face wider than long, or the head spatulate, or the tegmen with a wide appendix 18

18. (17) Eyes of normal proportions; antennal ledges encroaching onto the fronto-clypeus or the margin between the face and the crown acute with the ocelli marginal, or, on the crown 24

If the antennal ledges encroach onto the fronto-clypeus, then the eyes unusually largc; otherwise not as above 19

19. (18) Appendix of tegmen usually narrow 22

Appendix wide 20

20. (19) Wing with the marginal vein extending onto the anal area (Figure 30, C); pronotum heart-shaped ..... **Tartessinae**

Wing with the marginal vein not extending onto the anal area; pronotum not heart-shaped 21

21. (20) Tegmen with vein M 1 + 2 present; hind tibia short with an armature of weak spines ..... **Idiocerinae**

Tegmen lacking vein M 1 + 2; hind tibia long, with an armature of dense spines ..... **Coelidiinae**

22. (19) Eyes unusually large but not prominent; head in 3 transverse planes ..... **Austroagalloidinae**

Eyes of normal proportions, often prominent 23

23. (22) Pronotum small, neither declivous nor strongly arched anteriorly ..... **Agalliinae**

Pronotum large, anteriorly arched or declivous, humped, or anteriorly produced ..... **Macropsinae**

24. (18) Hind wing with vein Rs apically incorporated in the same vein as M 1 + 2.... 27

Hind wing with these veins separate for their entire length..... 25

25. (24) Ocelli situated on a narrow marginal rim which separates the crown from the face of the head; antennal ledges prominent 26

Head variable in shape, but never with a well defined marginal rim; ocelli on the face and marginal in position, or, on the crown ..... **Penthimiinae**

26. (25) Tegmina overlapping apically and with raised spots on the veins **Drabescinae**

Tegmina not as above ..... **Selenocephalini**

27. (24) Head flattened, crown extensive ..... **Reuplemmelini**

Head not flattened, a crown, if developed, narrow 28

28. (27) Pronotum and head steeply declivous forming a single curved surface as far as the antennal ledges ..... **Trocnadini**

Pronotum not steeply declivous; head with, or, lacking a crown ..... **Jassini**

29. (17) Tegmen with reduced venation, frequently lacking an appendix.. **Typhlocybinae**

Tegmen usually with complete venation; if venation reduced then the appendix is wide 30

30. (29) Venation of tegmen reduced ..... **Macrostelini**

Venation of tegmen complete 31

31. (30) Eyes exceptionally small; brown insects usually with oval yellowish markings.... ..... **Xestocephalinae**

Eyes of normal size, not coloured as above 32

32. (31) Face of head not emarginate beneath the eyes; antennae long.... **Platymetopiini**

Face of head emarginate beneath the eyes; antennae of variable length..... ..... **Deltocephalinae**

Ulopinae

The Ulopinae comprise very small leafhoppers, which are black or brown in colour, and usually have a pitted appearance. They are seldom taken in general collecting because of their small size and the fact that several live in concealed situations. They are of particular interest structurally because of the retention, in many forms, of the maxillary suture. That is to say, the genae and the maxillary plates are not completely amalgamated. Many occur in both a winged and wingless form. In the latter hind wings are lacking and the forewings are clytra-like. Brachypterous forms are also of occasional occurrence. In fully winged forms the pronotum is anteriorly declivous and wider posteriorly than anteriorly. In forms in which hind wings are lacking the pronotum is flat and parallel-sided.

Ulopids would seem to be relict insects surviving from the Mesozoic era. This supposition is based on a consideration of their comparative morphology and because certain other groups of leafhoppers, of presumed Tertiary origin, would seem to have been derived

from them. Of the 4 component tribes, two, the Megophthalmini and Cephalelini, were very possibly derived from the Ulopini before the close of the Mesozoic.

Ulopini

The Ulopini are represented in the Oriental region, Africa, Madagascar, Australia and New Zealand. They have, as well, sparse representation in the Palaearctic region. None, up to the present, have been recorded from the western hemisphere although the Megophthalmini, which likewise have Palaearctic and African, though not Oriental and Australian representatives, are known from western North America and Juan Fernandez Island.

Key to Australian Genera

1.	Ante-clypeus entirely exposed	2
	Ante-clypeus largely concealed by the overhanging clypeus	**Austrolopa** Evans
2. (1)	Vertex of head not narrowly produced	3
	Vertex of head narrowly produced	**Uloprora** Evans
3. (2)	Ocelli situated in marginal depressions	**Kavahalu** Kirkaldy
	Ocelli on the crown of the head	4
4. (3)	Tegmina angulate, apically acute	5
	Tegmina brachypterous, or if fully developed, not apically acute	**Taslopa** Evans
5. (4)	Antennal ledges oblique, in alignment with sides of post-clypeus	**Woodella** gen.nov.
	Antennal ledges approximately transverse	**Microlopa** gen.nov.

Kahavalu Kirkaldy

Kahavalu Kirkaldy 1906, Bull. Hawaii Sug.Ass.Exp.Sta. 1 (9): 371.

The head, pronotum, scutellum, and clavus are deeply pitted and have a rugose appearance. The ocelli are situated in grooves on the rounded anterior margin of the vertex and the vertex is short, transverse and flattened, except at the anterior angles. The venation of the tegmen is complete.

Type species—*Kahavalu gemma* Kirkaldy.

Kirkaldy (1906) created a subfamily, the Kahavaluinae, for the reception of this genus. Previously (Evans, 1947) I have included it in the Ulopini even although the presence of the ocelli in marginal depressions suggested affinity with leafhoppers in another tribe of the Ulopinae, the Megophthalmini. Examination of the type specimen has disclosed that this action was correct.

Kahavalu gemma Kirkaldy

(Figs. 6, B; 15, G, H)

Kahavalu gemma Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 371.

Length, ♀, 2·8 mm. General coloration black, the cells of the tegmen colourless hyaline.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

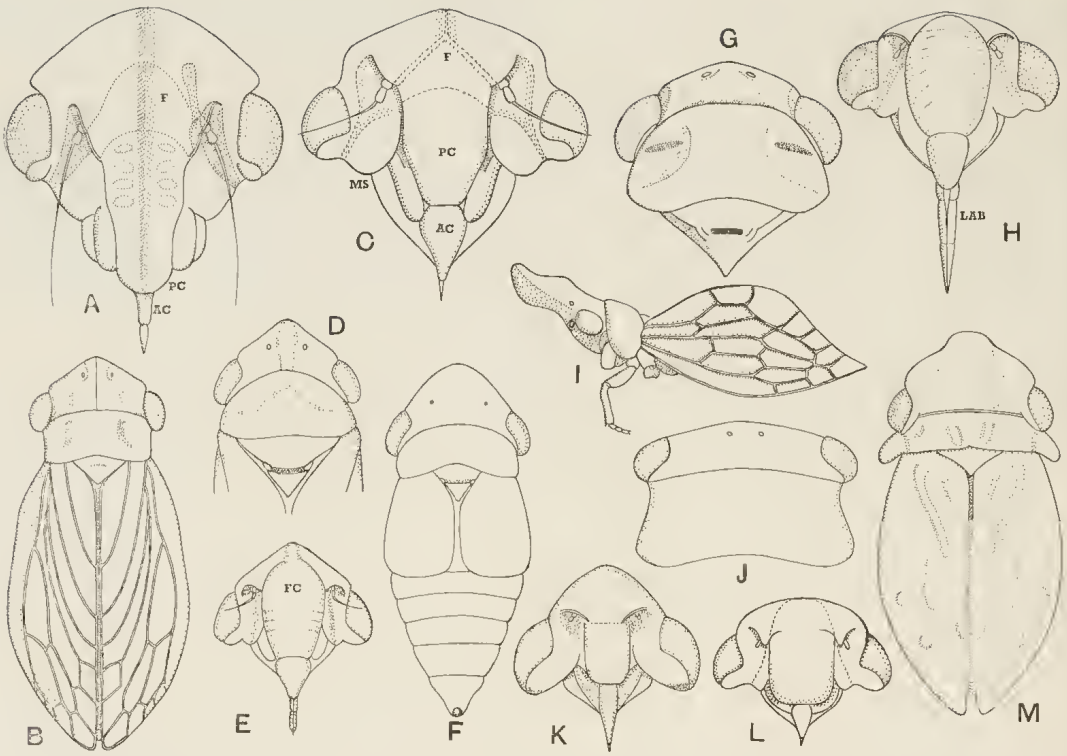


Fig. 15: A, *Austrolopa brunensis*, face of head: B, *A. brunensis*, wingless form; C, *Woodella wanungarae*, head; D, *Taslopa montana*, head and thorax, winged form, dorsal aspect; E, *T. montana*, head; F, *T. montana*, brachypterous form; G, *Kahavalu gemma*, head and thorax; H, *K. gemma*, face of head; I, *Uloprora risdonensis;* J, *Austrolopa victoriensis*, head and thorax, winged form; K, *Microlopa minuta*, face of head; L, *Novolopa townsendi*, face of head; M, *Myerslopia parva*. AC, ante-clypeus; FL, fronto-clypeus; LAB, labium; MS, maxillary suture; PC, post-clypeus.

Taslopa Evans

Taslopa Evans, 1942, Pap.Roy.Soc.Tasm. 1941: 29.

The labium terminates between the hind coxae and the ante-clypeus is pear-shaped. The lora are swollen and the maxillary plates narrowly exposed immediately anterior to the maxillary sutures. The fronto-clypeus, which is pitted, is convex and oval in shape. The crown of the head is arrow-shaped and longer than the pronotum. The appendix of the tegmen continues around the apex of the tegmen as far as the costal margin.

Type species—*Taslopa montana* Evans.

Taslopa montana Evans

(Fig. 15, D, E, F)

Taslopa montana Evans, 1942, Pap.Roy.Soc.Tasm. 1941: 29.

Taslopa brachyptera Evans, 1942, Pap.Roy.Soc.Tasm. 1941: 30.

Taslopa montana Evans, 1947, Ann.Mag.Nat.Hist. 14: 144.

Winged Form:

Length, ♀, 4 mm. Face of head marked with a pattern of light and dark brown; antennal depressions black. Crown of head raised and rugose medially; ocelli slightly closer to the fore, than to the hind margin. Pronotum steeply declivous, brown. Scutellum dark brown with yellow markings. Tegmen, clavus opaque and coriaceous; remainder colourless-hyaline; veins brown.

Brachypterous Form:

Length, ♀, 4 mm. Face of head marked with a pattern of light and dark brown. Crown flat; ocelli small and inconspicuous. Pronotum on a plane with the crown, brown. Scutellum concolorous with the pronotum, sometimes with 2 yellowish markings. Tegmen brachypterous, coriaceous, brown, but for a whitish streak that widens posteriorly and terminates anteriorly against the hind margin of the pronotum; sometimes also a brown oval marking.

Type Location—Australian Museum.

Type Locality—Mt Wellington, Hobart, Tasmania (4,000 ft).

Known distribution elsewhere—Mt Kosciusko (4,000 ft) New South Wales).

When the above species, and *T. brachyptera*, were described, it was not realised that many ulopids were dimorphic. Consequently, the very considerable differences in the size and shape of the crown of the head and the pronotum of the 2 forms were regarded as characters of specific significance.

Uloprora Evans

Uloprora Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 44.

The labium terminates beyond the middle coxae; the ante-clypeus, which is diamond-shaped, lies at a lower level than the lora and post-clypeus. The maxillary plates are almost entirely concealed by the lora and the epistomal suture is distinct. The vertex of the head is narrowly produced, sinuate, and dorsally and ventrally carinate. The ocelli are on the crown in alignment with the anterior corners of the eyes. The pronotum is medially raised. The tegmina (of forms lacking hind wings) are elytra-like and apically acute and the veins raised in high relief.

Type species—*Uloprora risdonensis* Evans.

Uloprora risdonensis Evans

(Fig. 15, I)

Uloprora risdonensis Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 45.

Length, wingless ♀, 5 mm; length of crown of head 1·2 mm. Head brown, punctate, covered with short, sparse, white hairs; part white. Known only in the wingless form.

Type Location—Australian Museum.

Type Locality—Risdon, Tasmania.

Known distribution elsewhere—Dunwich (Queensland).

Austrolopa Evans

Austrolopa Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 47.

The face of the head is longer than wide; the lora, which are narrow and flat, exten posteriorly as far as the maxillary sutures, and the maxillary plates are narrowly visible. Th ante-clypeus is almost entirely concealed by the overhanging post-clypeus, which is tectiform The frons is laterally concave and the vertex medially carinate. The crown of the head wide. In winged forms the pronotum is declivous while in those lacking hind wings it entirely on a plane with the pronotum. The tegmina (wingless forms) are apically narro and the veins are raised in relief. The hind tibiae are armed with minute spines.

Type species—*Austrolopa brunensis* Evans.

The 2 species of *Austrolopa* may be separated by the following character:—

Crown of head longer in the centre than against the eyes—*brunensis* Evans.

Crown of head of even length, and equal in length to the adjacent eyes—*victoriensis* Evans.

Austrolopa brunensis Evans

(Fig. 15, A, B)

Austrolopa brunensis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 48.

Austrolopa kingensis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 48 (syn.nov.).

Austrolopa tasmaniensis, Evans, 1947, Ann.Mag.Nat.Hist. 14: 140 (syn.nov.).

Length, wingless ♂, ♀, 4 mm; winged ♀, 3·8-4·5 mm. General coloration, pal brown or pale brownish-grey, sometimes flecked with dark brown. Hind margin of fron sometimes entirely distinct, sometimes medially divided by a longitudinal ridge which extend onto the vertex.

Type Location—Australian Museum.

Type Locality—Bruni Island, Tasmania.

Known distribution elsewhere—Margate, Hobart, King Island (Tasmania); Brisbane, Lamington National Park (Queensland); Fern Tree Gully (Victoria); Mt Kosciusko, Wright's Lookout, New England National Park (New South Wales); Kangaroo Island (South Australia).

Collected on—Bossiaea foliosa (Mt Kosciusko).

(The figure of the male genitalia which accompanied the original description of *A. kingensis* was misleading, since it is evident that the acdeagus, as figured, is incomplete, the apical half being missing.)

Austrolopa victoriensis Evans

(Fig. 15, J)

Austrolopa victoriensis Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 44.

Length, winged ♀, 4 mm. Face of head pale brownish-yellow; an area anterior to each antenna, black. Crown of even width with the eyes. Pronotum declivous, grey mottled with black. Scutellum grey, anterior angles black. Tegmen transparent, veins brown; claval area coriaceous.

Type Location—National Museum, Melbourne.

Type Locality—Warburton, Victoria.

Microlopa gen. nov.

On the face of the head, which is approximately as long as wide, the labium terminates etween the posterior margins of the hind coxae, the ante-clypeus is narrowly pear-shaped nd the post-clypeus, which is slightly convex, is parallel-sided. The well-developed antennal :dges are almost transverse and slightly curved, and the face, posterior to these ledges, slopes :eeply to the anterior margin of the head. A separate frontal region is not defined.

On the crown of the head, which is broadly acute and flattened, the sides against the yes are antero-laterally directed, so that crown is wider anteriorly than posteriorly. The ronotum is collar-shaped and the tegmina, which are apically acute, elytra-like.

'ype species—*Microlopa minuta* sp.nov.

The above generic description is based on a form with full-developed tegmina but lacking ind wings. *Microlopa* differs from *Taslopa* Evans (which is known only in fully-winged and rachypterous forms) in the lack of a well-defined frontal region on the face of the head.

Microlopa minuta sp. nov.

(Fig. 15, K)

Length, wingless ♂, 2·8 mm; wingless ♀, 3·8 mm.

General coloration pale, or dark, brown. Crown of head, thorax and tegmina punctate. *Iolotype* ♂ and *Allotype* ♀ from near Waldheim, Cradle Mt, Tasmania (coll., on grasses, .W.E. 2/64) in the Australian Museum.

Woodella gen.nov.

The labium extends as far as the hind coxae. The ante-clypeus is pear-shaped and the ora, which are slightly convex anteriorly, extend anteriorly as far as the margins of the naxillary plates. The maxillary plates are broadly exposed and the maxillary sutures distinct. The fronto-clypeus is slightly convex anteriorly and slightly concave posteriorly and there is a ow median longitudinal ridge extending from the frons to the vertex. The antennal ledges re almost in alignment with the sides of the post-clypeus. The crown is longest in the centre nd considerably greater in length than the pronotum, and the ocelli, which are on the crown, re white and probably functionless. The tegmen is apically acute and the hind margin is roadly angulate. The hind tibiae are armed with small spines.

Type species—*Woodella wanungarae* sp.nov.

Woodella resembles *Austrolopa* in the shape of the head, in particular in having the antennal edges almost in alignment with sides of the post-clypeus. It differs from *Austrolopa* in having he ante-clypeus completely exposed.

Woodella wanungarae sp.nov.

(Fig. 15, C)

Length, wingless ♂, 3·4 mm. General coloration brown, the tegmen with a transverse whitish band posteriorly.

Holotype ♂ from Mt Wanungara, McPherson Ranges, Queensland (coll. T. Woodward, in noss, 1958), in the Queensland Museum.

Novolopa gen.nov.

The face of the head is broader than long. The labium extends to between the middl coxae. The ante-clypeus is pear-shaped and swollen, and the post-clypeus, which is anteriorl swollen and declivous, is medially flat and slopes laterally; an epistomal suture is not discernible The maxillary plates are narrow and maxillary sutures well defined. The antennal ledges ar U-shaped and anteriorly lobed. The vertex is laterally depressed behind the epicrania suture and there is an obscure median longitudinal ridge.

The crown of the head is longer than the pronotum, and flat, and the ocelli are obolescent The pronotum and scutellum are on the same plane as the crown. The tegmina (of wingless forms) are elytra-like and taper apically. The venation is obscure.

Type species—*Novolopa townsendi* sp.nov.

Novolopa resembles *Ulopa* Fallen more than any other ulopid described from the southern hemisphere. It differs in having a flat crown, which laterally forms a continuous curved surface with the eyes.

Novolopa townsendi sp.nov.

(Fig. 15, L)

Length, wingless ♀, 4·7 mm. General coloration straw-coloured, irregularly mottled with brown. Tegmen with a proximal oval brown marking adjacent to the claval suture; veins whitish.

Holotype ♀ from Mt Owen, 5,000 ft South Island, New Zealand (coll. 2/60 J. I. Townsend and W. P. Thomas), in the collection of the Entomology Division, D.S.I.R., Nelson. Described from 5 wingless females, all from the same locality.

Cephalelini

Insects in this tribe which occur in South Africa, as well as in Australia and New Zealand, range in length from 3·5 to 15 mm. In the larger forms, more than one-third of the total length consists of the crown of the head.

All seem to feed principally on rushes belonging to the Family Restioniaceae, although sometimes found in abundance on *Acacia* spp. and other shrubs. Winged and wingless forms of a species are seldom taken together and nothing is known of the factors which determine the development of either.

The two forms may be distinguished as follows:—

Winged Forms	*Wingless Forms*
Head shorter and wider than in wingless form.	Head sometimes longer and narrower than in winged form.
Ocelli functional.	Ocelli functionless (white in appearance) or absent.
Pronotum anteriorly declivous and widest posteriorly.	Pronotum flat and parallel-sided.
Tegmen apically rounded, sometimes partially hyaline; venation distinct; claval suture well developed.	Tegmen apically acute, usually coriaceous and elytra-like; venation frequently obscure; claval suture often obsolete.

Previously (Evans, 1947) I have stated that the Cephalelini are unable to jump, but this incorreet. As with certain genera of the Ulopini, there is a considerable degree of variability ithin the Cephalelini, and the true status of the various forms cannot be determined until a itical investigation of the comprised speeies is undertaken.

In this tribe there is a gradual transition from small forms, but little different from certain the Ulopini, to others which are narrowly elongate and seed-like in appearance. Whether ture study will show that the tribe is best regarded as comprising several genera, or one only, uneertain. For the time being all but the most highly speeialized species are regarded as longing to a single genus.

Characters distinguishing the Genera of the Cephalelini

Faee of head eonvex, flattened or slightly medially concave; eyes usually not in ignment with the sides of the head; ocelli white (functionless) in wingless form.

Cephalelus Pereheron

Face of head percurrently concave; eyes usually in alignment with the sides of the head; elli absent in wingless forms.

Paracephaleus Evans

Cephalelus Percheron

phalelus Percheron, 1832, Mag.Zool. 9: 48.

orydium Burmeister, 1835, Handb.Ent. 2: 106.

otocephalius Jaeobi, 1909, Faun.S.W.Aust.Michaelsen u. Hartmeyer 2: 339.

rocephaleus Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 43.

nacephaleus Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 46.

phalelus Percheron, Evans, 1947, Ann.Mag.Nat.Hist. 14: 145.

Insects ranging in length from 3·5 to 12 mm and in colour from light to dark brown. he labium is short, not usually extending as far as the hind eoxae, the ante-clypeus swollen nd pear-shaped and the antennal ledges, which overhang deep antennal pits, transverse. he fronto-clypeus is eonvex, flattened or slightly medially concave and the epicranial suture not defined. The crown is narrowly arrow-shaped; the eyes are usually slightly laterally rominent; ocelli are absent, or functionless, and there is usually a slight median carina. he pronotum, in winged forms, is anteriorly declivous and flat in forms lacking wings. The gmina are apically narrow and the venation may be reticulate. The hind tibiae are xternally flattened and parallel-sided.

ype speeies—*Cephalelus infumatus* Pereheron (South Africa).

Cephalelus ianthe (Kirkaldy)

(Fig. 16, G)

orycephalus ianthe Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 340.

orycephalus trilineatus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 341 (syn.nov.).

nacephaleus simplex Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 44 (syn.nov.).

Length, ♀, 7 mm; of crown of head, 2 mm (wingless form). General coloration evenly pale brown or greyish-brown with dark brown markings on the tegmen. Crown of head with an ill-defined median longitudinal carina; ocelli present but functionless; eyes not in alignment with the sides of the head. Tegmen, venation slightly reticulate.

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Known distribution elsewhere—Mordiallac (Victoria); Coolum, Stradbroke Island (Queensland); Sydney (New South Wales).

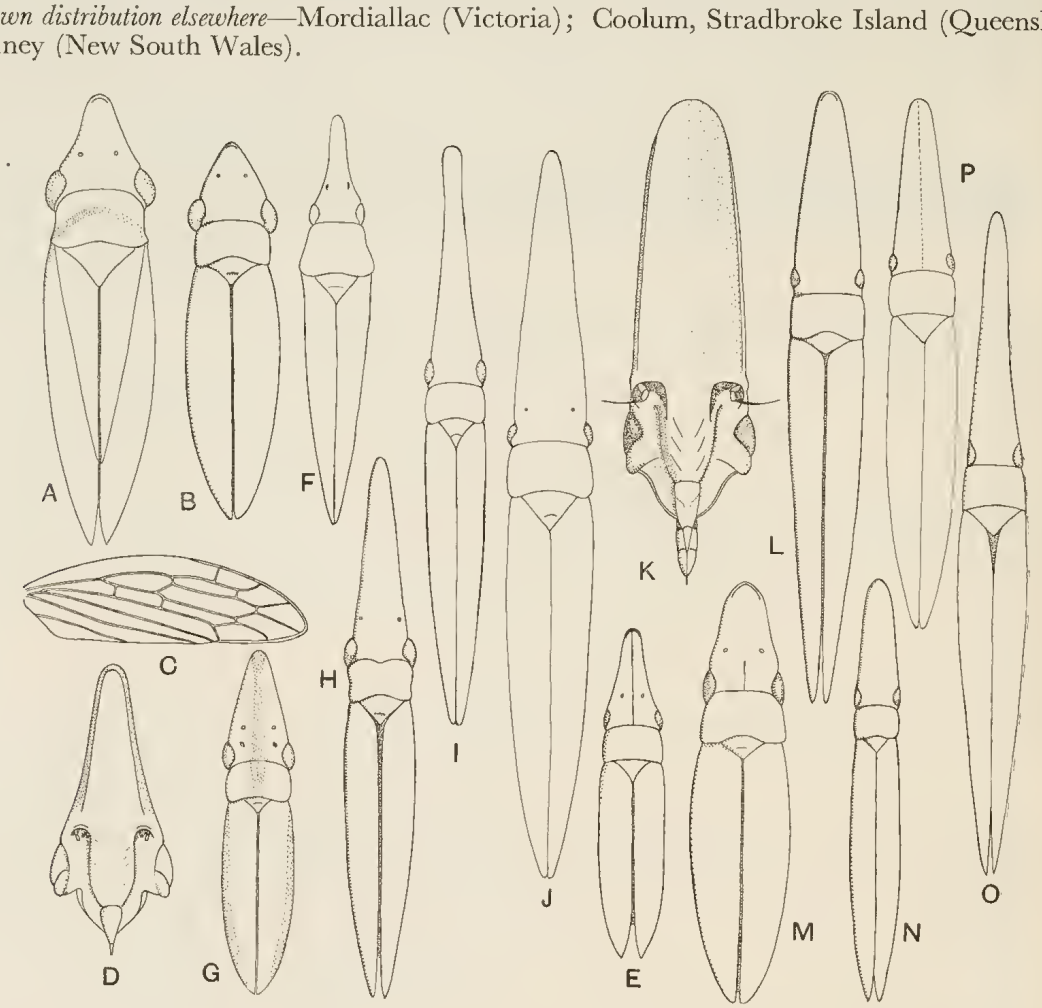


Fig. 16: A, *Cephalelus minutus*, winged form; B, *C. minutus*, wingless form; C, *C. minutus*, tegmen; D, *Cephalelus foveolatus*, face of head; E, *C. foveolatus;* F, *Paracephaleus montanus*, winged form. G, *Cephalelus ianthe;* H, *Cephalelus marginatus;* I, *Cephalelus bulbosa;* J, *Cephalelus punctatus;* K, *Paracephaleus hudsoni*, face of head; L, *P. hudsoni;* M, *Cephalelus ulopae;* N, *Paracephaleus leptocarpi;* O, *Paracephaleus brunneus;* P, *Cephalelus dobsonensis.*

Cephalelus foveolatus (Signoret) (comb.nov.)

(Fig. 16, D, E)

Dorydium foveolatus Signoret, 1880, Ann.Soc.Ent.Fr. (5) 10, 144.

Paradorydium foveolatum (Signoret), Kirkaldy, 1906, Bull. Hawaii Sug. Ass.Exp.Sta. 1 (9): 340.

orycephalus subreticulatus Kirkaldy, 1906, Bull. Hawaii Sug.Ass.Exp.Sta. 1 (9): 340 (syn.nov.).

ıradorydium michaelseni Jacobi, 1909, Faun.S.W.Austral., Michaelsen u. Hartmeyer, 2: 339 yn.nov.).

Length, ♀, 6·5 mm. This species differs from *C. ianthe* in having the sides of the crown ırved and not straight, the median coronal carina pronounced and the venation of the tegmen ore reticulate.

ype Location—Natural History Museum, Vienna.

ype Locality—Western Australia.

nown distribution elsewhere—Fremantle (Western Australia); Springwood, Sydney (New South Vales).

Cephalelus bulbosa (Evans)

(Fig. 16, I)

·ocephaleus bulbosa Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 43.

Length, ♀, 8·2 mm; of crown of head 3 mm (wingless form). Head, crown more or ss circular in section, slightly bulbous apically; ocelli rudimentary, eyes in alignment with the les of the crown.

ype Location—Australian Museum.

ype Locality—Carlisle, Western Australia.

nown distribution elsewhere—Kiata (Victoria).

Cephalelus ulopae (Evans)

(Fig. 16, M)

nacephaleus ulopae Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 44.

Length, wingless ♀, 5 mm; of crown of head, 1·2 mm. General coloration pale ·ownish-yellow with brown and white markings. Eyes prominent. Venation of tegmen ticulate; veins in relief.

ype Location—South Australian Museum.

ype Locality—Adelaide, South Australia.

nown distribution elsewhere—Swan River (Western Australia); Maroota (New South Wales).

Cephalelus minutus (Evans)

(Fig. 16, A, B, C)

nacephaleus minutus Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 43.

nacephaleus carribenis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 44 (syn.nov.).

nacephaleus latus Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 45 (syn.nov.).

Length, ♂, ♀, winged and wingless forms, 3·5-4·4 mm; of crown of head, 0·7-1 mm. eneral coloration pale, or dark brown, with, or without brown markings.

Wingless Form: Head, labium extending to base of hind coxae; maxillary sutures present; fronto-clypeus flat, vertex sloping gradually to the margin with the crown; eyes prominent, ocelli functionless. Tegmen elytra-like, basally punctate, distinct; venation normal.

Winged form (*latus*) differs in having functional ocelli, the pronotum widest posteriorly and posteriorly humped, and the claval suture in the tegmen distinct.

Type Location—Australian Museum.

Type Locality—Perth, Western Australia.

Known distribution elsewhere—King George's Sound (Western Australia); Carribie, York Peninsular (South Australia); Mt Wellington, Hobart (Tasmania); Durkes Forest (New South Wales); Forrest (Victoria).

Cephalelus marginatus Waterhouse

(Fig. 16, H)

Cephalelus marginatus Waterhouse, 1839, Trans.Ent.Soc.Lond. 2: 195.

Notocephalius hartmeyri Jacobi, 1909, Faun.S.W.Aust.Michaelsen u. Hartmeyer, 2: 339 (syn.nov.).

Anacephaleus punctatus Evans, 1937, Pap.Roy.Soc.Tasm.1936: 45 (syn.nov.).

Length, wingless ♂, 8-10 mm; wingless ♀, 10-11 mm; of crown of head 3-5 mm. General appearance streaky mottled brown, rugose. Head, face with short white hairs; labium terminating between middle coxae; ante-clypeus narrowly pear-shaped; lora extending posteriorly as far as antennal pits, flat; remainder of face slightly concave. Head, sloping laterally; ocelli approximately the same distance from the eyes as the length of the eyes; eyes not in alignment with the sides of the head. Tegmen apically acute, punctate, venation obscure, or veins distinct and raised in relief.

Type Location—Unknown.

Type Locality—King George's Sound, Western Australia.

Known distribution elsewhere—Kiata (Victoria); Bogan River (New South Wales).

Cephalelus punctatus Evans

(Fig. 16, J)

Cephalelus punctatus Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 46.

Length, wingless ♂, 13·5 mm; wingless ♀, 15 mm. General coloration pale brownish-yellow. Crown of head apically narrow. Tegmen punctate, pale brownish-yellow with a wide dark brown band which may extend onto the pronotum and head close to, but not against, the costal margin. Venation distinct, but veins not raised in relief.

Type Location—Macleay Museum, University of Sydney.

Type Locality—King George's Sound, Western Australia.

When previously (1947) I separated the described species of the Cephalelini into 2 genera, *Cephalelus* Percheron and *Notocephalius* Jacobi, *C. infumatus* Percheron was cited as the type of *Cephalelus* and *N. hartmeyri* Jacobi as the type of *Notocephalius*. Further investigation has disclosed that *N. hartmeyri* is better included in the same generic grouping as *C. infumatus* Percheron. A generic name is accordingly required for the species remaining in the second

genus of the Cephalelini. The name *Paracephalus* Evans, which previously (Evans, 1947) had been listed as a synonym of *Notocephalius*, is available. This genus was created for a winged form at a time when I had not appreciated that species in the Ulopinae might be polymorphic.

Paracephaleus Evans

Paracephaleus Evans, 1942, Proc.Roy.Soc.Queensland, 54: 49.

Differs from *Cephalelus* in the following characteristics: The face of the head, posterior to the antennae, is percurrently concave and never bears hairs. The lateral antennal indentations are less pronounced. The dorsal surface is always smooth and never rugose. The crown, apically, is nearly spatulate, otherwise convex. Ocelli are absent in wingless forms and the eyes are completely, or almost, in alignment with the sides of the head. The tegmina are narrow, and apically acute and the venation of wingless forms obscure.

Type species—*Paracephaleus montanus* Evans.

Paracephaleus brunneus (Waterhouse)

(Fig. 16, O)

Cephalelus brunneus Waterhouse, 1839, Trans.Ent.Soc.Lond. 2: 195.

Notocephalius brunneus (Waterhouse) Evans, 1947, Ann.Mag.Nat.Hist. 14: 148.

Notocephalius pallidus Evans, 1947, Ann.Mag.Nat.Hist. 14: 146 (syn.nov.).

Length, winged ♂, 9·2 mm; wingless ♂, 12 mm; of crown 3·8 and 5 mm. General coloration, even yellowish-brown.

Type Location—British Museum.

Type Locality—Sydney, New South Wales.

Known distribution elsewhere—Hobart (Tasmania); Blundells (A.C.T.); Swan River (Western Australia); Kiata, Inverloch, Lucindale (Victoria).

Paracephaleus montanus (Evans)

(Fig. 16, F)

Paracephaleus montanus Evans, 1942, Proc.Roy.Soc.Queensland 54: 50.

Length, winged ♀, 7 mm; of crown of head 1·8 mm; wingless ♀, 6·8 mm; of crown of head 1·8 mm; wingless ♀, 8 mm; of crown of head 2 mm. General coloration, pale brown.

Type Location—Australian Museum.

Type Locality—Mt Wellington, Hobart, Tasmania.

Paracephaleus dobsonensis sp.nov.

(Fig. 16, P)

Length, wingless ♂, 8-9 mm; wingless ♀, 9 mm length of head, 2·8-3 mm. General coloration, ♂, pale straw-colour, ♀, pale brown.

Holotype ♂ and *Allotype* ♀ from Lake Dobson, Tasmania (coll. T. Woodward, 2/55) in th Queensland Museum. *Paracephaleus dobsonensis* differs from *P. brunneus* in the proportions o the head in relation to the rest of the body and in having the apex of the head less acute. I differs from *P. montanus* in being considerably larger and in having less prominent eyes.

Paracephaleus hudsoni (Myers) (comb.nov.)

(Fig. 16, K, L)

Cephalelus hudsoni Myers, 1923, Trans.N.Z.Inst. 54: 417.

Length, ♂, 10, ♀, 11·5 mm, of crown of head, 3-3·7 mm. Head slightly spatulate.

Type Location—British Museum.

Type Locality—Wellington, New Zealand.

Known distribution elsewhere—Paiaka (Manawatu), (North Island).

Paracephaleus leptocarpi (Myers) (comb.nov.)

(Fig. 16, N)

Cephalelus leptocarpi Myers, 1923, Trans.N.Z.Inst. 54: 420.

Length, ♂, 8·5-9 mm; ♀, 10·5 mm, of crown of head, 3-3·5 mm. Head distinctly spatulate.

Type Location—British Museum.

Type Locality—Wangeri (North Island, New Zealand).

Myerslopiini

Myerslopiini, Evans, 1957, Rev.Chil.Ent. 1957 (5): 368.

This tribe contains 2 described genera, *Myerslopia*, Evans from New Zealand, and *Paulianiana* Evans, from Madagascar. A third genus occurs in Chile but at present is known only from immature stages (Evans, 1962).

The principal distinguishing characteristics are the flattened, broadly arrow-shaped crown of the head, and the presence of narrow pronotal paranota. Insects in both genera would seem to live in leaf mould on the forest floor and when found have been covered with adhering soil.

Myerslopia Evans

Myerslopia Evans, 1947, Ann.Mag.Nat.Hist. 14: 143.

The labium is long and extends beyond the hind coxae. The ante- and post-clypeus are swollen, and the former is raised medially while the latter is elevated laterally and medially depressed. Maxillary sutures are not retained and the antennal depressions are deep. The anterior margin of the head is foliaceous, the crown is variable in shape, the eyes are prominent and ocelli absent. The pronotum is laterally produced as a pair of small, posteriorly directed, paranotal lobes and has a pair of longitudinal ridges. The tegmina are coriaceous and pitted and usually bear either a few, or several, raised prominences and the ventral margins bordering the anal area are straight; beyond the anal area they are sharply curved inwards. The

venation is obscure; some of the veins may be raised in relief. The hind tibiae, which are flattened exteriorly, bear 2 rows of widely spaced strong spines and have as well numerous hairlike spines.

Type species—*Myerslopia magna* Evans.

Myerslopia magna Evans

Myerslopia magna Evans, 1947, Ann.Mag.Nat.Hist. 14: 144.

Length, wingless ♀, 6·7 mm. General coloration dark brown. Head, post-clypeus with 2 pairs of lateral prominences, the anterior ones larger than the posterior ones. Crown triangular in shape, marginally foliaceous, antero-medially concave. Pronotum with the external margins of the paranota U-shaped. Tegmen with several large, and 1 small, prominence.

Type Location—British Museum.

Type Locality—Waimarino, North Island, New Zealand.

Known distribution elsewhere—Anomalatu Valley, Marlborough (South Island).

Myerslopia parva Evans

(Fig. 15, M)

Myerslopia parva Evans, 1947, Ann.Mag.Nat.Hist. 14: 144.

Length, wingless ♂, ♀, 3·5-5 mm; width of head 2 mm, of pronotum, 2·3 mm. General coloration dark brown. Head, post-clypeus postero-medially depressed. Crown approximately semi-circular in outline, anterior margins slightly sinuate. Pronotum with the outer margins of the lateral lobes straight. Tegmen with 3 elongate prominences.

Type location—British Museum.

Type Locality—Ohakune, North Island, New Zealand.

Known distribution elsewhere—Titirangi (Auckland).

Ledrinae

All but one of the four tribes into which this sub-family has been divided (Evans, 1947) occur in Australia, and one of these has representation also in New Zealand. The Ledrinae are principally brown, green or orange insects, and nearly all have hind tibiae armed with spines mounted on enlarged bases. The nymphs of the majority are considerably flattened. Reasons for associating together into one sub-family representatives of the 3 tribes listed below have been discussed elsewhere (Evans, 1947a); also, evidence of their derivation from the Jassinae (Evans, 1959).

Key to the Tribes of the Ledrinae Represented in Australia

1. Crown of head extensive and broadly spatulate; ocelli on the crown ..... **Ledrini**

2. Ocelli in marginal depressions; anal veins forming a Y-vein ..... **Stenocotini**

   Head variously shaped; ocelli usually on, or near, the crown, never in marginal depressions ..... **Thymbrini**

Ledrini

This tribe might well be separated into two, one tribe to contain *Rubria* spp., and the other the remaining genera. The reason this step has not been taken is because it needs to be preceded by a study of the ledrids of Africa and the Oriental region, as well as of those comprised in the Australian fauna. While most of the Australian genera are endemic, some have representation also in the Oriental region. Because of the preponderance of endemic genera and their wide distribution within the continent, it is presumed that the Ledrini, which are essentially a tropical group of insects, may have gained access to Australia from the north, prior to the period of Tertiary isolation.

Key to the Genera of Ledrini Occurring in Australia

1. Insects less than 20 mm in length 2
   Insects more than 20 mm in length ..... **Ledromorpha** Stål

2. (1) Venation of tegmen reticulate 3
   Venation of regmen not reticulate ..... **Rubria** Stål

3. (2) Pronotum lacking lateral wing-like processes 4
   Pronotum with lateral wing-like processes ..... **Porcorhinus** Goding

4. (3) Crown widest across the eyes, thence tapering apically; pronotum not keeled.... ..... **Ledropsis** White
   Crown not widest across the eyes; pronotum keeled 5

5. (4) Pronotum flat or only slightly raised posteriorly ..... **Platyledra** Evans
   Pronotum steeply elevated posteriorly 6

6. (5) Pronotum considerably higher than the scutellum ..... **Ledropsella** gen.nov.
   Pronotum, posteriorly, on the same level as the scutellum .. **Jukaruka** Distant

Ledromorpha Stål

Ledromorpha Stål, 1864, Ann.Soc.Ent.Fr. (4) 4: 68.

The face of the head is longer than wide and the labium extends to the base of the hind coxae. The maxillary plates narrowly enfold the ante-clypeus and extend anteriorly beyond it. The position of the maxillary suture is discernible as a transverse fold. The anterior tentorial pits are prominently exposed. The frons, which is considerably wider than the post-clypeus, is medially convex and narrow posteriorly; laterally it is deeply longitudinally depressed. The crown of the head, which is foliaceous, is convex. The eyes are prominent and the ocelli, which are raised on slight prominences, are nearer to each other than to the eyes on each side. The pronotum, medially, is on the same plane as the crown and is laterally depressed. The scutellum is slightly raised posteriorly, the elevated portion being transversely striated. The tegmen, which is coriaceous, progressively widens to a little beyond the apex of the claval suture and it is apically bent. The venation is profusely reticulate apically; in particular there are numerous costal veinlets and Cu 1 is multi-branched. The tibiae of all 3 pairs of legs are foliaceous. In the ♀, the ovipositor extends beyond the folded tegmina.

Type species—*Fulgora planirostris* Donovan.

Ledromorpha planirostris (Donovan)

(Fig. 2)

Fulgora planirostris Donovan, 1805, Ins.New Holland; Hem.Pl. 1, Fig. 1.

Ledra caudata Walker, 1851, List.Homopt.Brit.Mus. 3: 813.

Ledra valida Walker, 1851, List.Homopt.Brit.Mus. 3: 814.

Ledromorpha vaginata Stål, 1864, Ann.Soc.Ent.Fr. (4) 4: 68 (syn.nov.).

Length, ♀, 23-28 mm; width of head across eyes 8 mm. General coloration, reddish brown, nigger brown or buff mottled with dark brown. Hind tibia with 6 spurs and a few hair-like spines.

Type Location—Unknown.

Known distribution—Gatton, Ipswich (Queensland); Como, Sydney, Katoomba (New South Wales); Invermay, Blackburn (Victoria).

All specimens available to me for examination have been females, and it is of interest to note that Donovan's original illustration is apparently of a male. While undoubtedly best included in the Ledrini because of its foliaceous head and the position of the ocelli, *L. planirostris* has also certain characteristics in common with insects in a related tribe, the Stenocotini. Thus, in the tegmen, Cu 1 is multi-branched and there is a tendency for the anal veins to form a Y vein.

Porcorhinus Goding

Porcorhinus Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 38.

Gudwana Distant, 1917, Ann.Mag.Nat.Hist. 20: 189.

The face of the head is oval in shape and the labium extends to the base of the middle coxae. The ante-clypeus is approximately diamond-shaped and the fronto-clypeus, which is convex, is more or less parallel-sided. The antennal depressions are deep and basin-like, but prominent antennal ledges are lacking. The crown is spatulate, transversely convex and has a median longitudinal carina. The pronotum, which is slightly longer than the crown, is anteriorly declivous. Posteriorly it is raised into 2 forwardly directed lateral processes, which narrow apically. The basal third of the tegmen is punctate and coriaceous; the remainder corrugated. The venation is reticulate and the anal veins sometimes form a Y-vein. The tibiae of all 3 pairs of legs are foliaceous.

Type species—*Porcorhinus mastersi* Goding.

Porcorhinus mastersi Goding

(Fig. 17, C)

Porcorhinus mastersi Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 39.

Gudwana typica Distant, 1917, Ann.Mag.Nat.Hist. 20: 189.

Length, ♀, 11-14 mm. Crown mottled yellowish-brown. Pronotum and scutellum, in part brown, in part green, or entirely mottled with brown. Tegmen, basal third green, or, brown, the remainder hyaline-colourless; veins greenish-brown. Hind tibia with 7 small spurs and a row of closely set minute spines.

Type Location—Macleay Museum, University of Sydney.

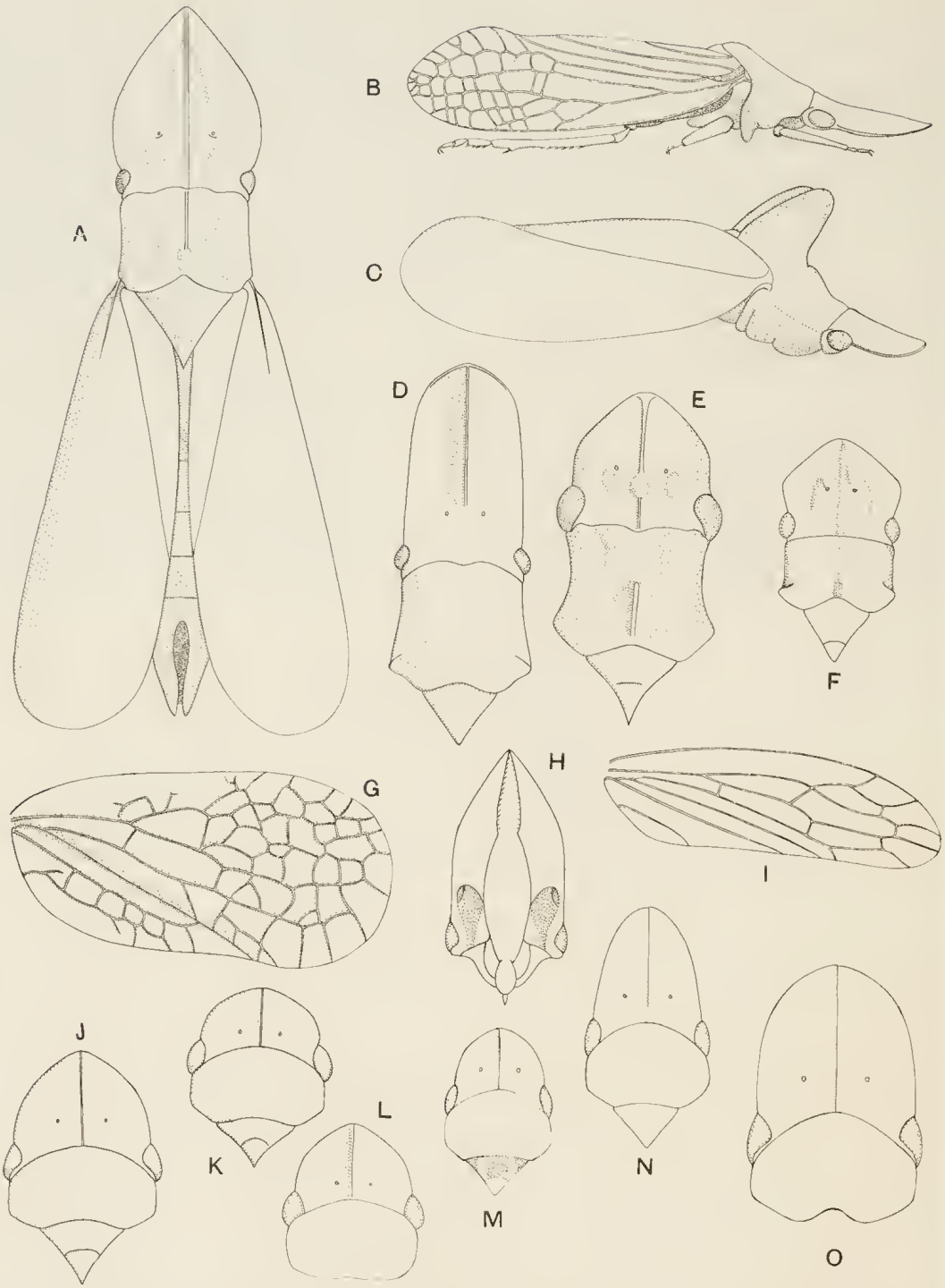


Fig. 17: A, *Platyledra acuminata*; B, *Ledropsis crocina;* C, *Porcorhinus mastersi;* D, *Ledropsis crocina,* head and thorax; E, *Ledropsella monstrosa;* F, *Jukaruka grisea,* head and thorax; G, *Ledropsella monstrosa,* tegmen; H, *Platyledra hirsuta,* face of head; I, *Rubria brevifrons,* tegmen; J, *Rubria informis,* ♀, head and prothorax; K, *R. informis,* ♂; L, *Rubria brevifrons,* ♂; M, *Rubria smalei.* ♂; N, *Rubria sanguinosa,* ♂; O, *Rubria ingens,* ♂.

Type Locality—Sydney, New South Wales.

Known distribution elsewhere—Gippsland (Victoria).

Although many Ledrids have paired pronotal processes, this is the only Australian species in which this development occurs. It was originally described as a membracid.

Ledropsis White

Ledropsis White, 1844, Ann.Mag.Nat.Hist. 14: 425.

The face of the head is concave and the labium, which is short and proximally, together with the fore coxae, sunk below the level of the mesosternum, projects at right angles to the head. The maxillary plates overlap the anteclypeus antero-laterally and the slightly swollen lora slope inwardly. The antennae are situated on the posterior margins of deep lateral depressions. The crown is convex with an obscure central ridge and is widest across the eyes. The eyes protrude beyond the margin of the head and the ocelli are closer to each other than to the eyes on each side. The pronotum is collar-like and raised posteriorly. The venation of the tegmen is distally reticulate. The tegmina of male insects are parallel-sided; those of females are wider at the apex than the base. The tibiae are flattened and parallel-sided.

Type species—*Ledropsis cancroma* White (Hong Kong).

Ledropsis crocina Distant

(Fig. 17, B)

Ledropsis crocina Distant, 1917, Ann.Mag.Nat.Hist. 20: 188.

Ledropsis froggatti Distant, 1907, Ann.Soc.Ent.Belg. 51: 192 (syn.nov.).

A variable species both in size and colour pattern. Length ♂, 9-11·5 mm; ♀, 12-14 mm. Crown of head 2-3 and 3-4 mm. General coloration, even dull brown, or pale yellowish-brown, evenly mottled with reddish-brown. Tegmina of males sometimes with a well-defined, though variable, colour pattern of pale brown and chocolate-brown.

Type Location—British Museum.

Type Locality—Tamworth, New South Wales.

Known distribution elsewhere—Blackheath, Sydney, Barrington Tops, East Dorrigo (New South Wales); Mt Tambourine (Queensland); Mordialloc (Victoria).

Jukaruka Distant

Jukaruka Distant, 1907, Ann.Soc.Ent.Belg. 51: 190.

"Vertex of head about as long as space between eyes, centrally carinate; ocelli about the middle of the crown; face of head foliaceous elongate, narrowed anteriorly; disk centrally sulcate. Pronotum longer than wide, centrally longitudinally laminately ridged. Legs slender, hind tibiae narrowly foliaceous, parallel-sided, hind coxae with short spines; apical veins of tegmen coarse and reticulate."

Type species—*Jukaruka typica* Distant.

Jukaruka typica Distant

Jukaruka typica Distant, 1907, Ann.Soc.Ent.Belg. 51: 190.

Length, ♂, 10 mm. "Ochraceous, much mottled with black and piceous; body beneath and legs stramineous; face black, narrowed anteriorly where on each side is a carmine-red spot posteriorly bordered with black; tegmina piceous, inner basal margin and apical area to clavus, pale testaceous; the whole apical area of tegmen pale sub-hyaline with the reticulate veins piceous."

Type Location—British Museum.

Type Locality—Queensland.

Jukaruka grisea sp.nov.

(Fig. 17, F)

Length, ♂, 7-9 mm. General coloration pale yellowish-grey sparsely mottled with brown, particularly on the pronotum and the tegmen, proximally. Crown of head approximately five-sided, the sides of equal length, wider anteriorly, but not apically, than between the eyes. Pronotum with a ventral longitudinal ridge which is lacking on the declivous portion. Scutellum slightly raised posteriorly.

Holotype ♂, from Swan River, Western Australia (coll. E. J. Newman) in the Australian National Insect Collection, Canberra.

Known distribution elsewhere—Bunbury (Western Australia).

J. grisea differs from the type species in having a considerably less prominent median keel on the pronotum.

Platyledra Evans

Platyledra Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 39.

On the face of the head, which is oval in shape and concave, the labium extends almost to the base of the middle coxae. The ante-clypeus is pear-shaped and the fronto-clypeus elongate-oval, bordered by deep longitudinal channels, excepting for its posterior quarter, where it is narrow and lateral channels are lacking. The crown of the head is twice the length of the pronotum and spatulate across the eyes. The surface is rugose and corrugated and there is a longitudinal median carina which extends onto the pronotum. The ocelli are on the crown, on prominences, and are closer to the eyes on each side than to each other. The pronotum is flat or may be slightly elevated posteriorly. The scutellum, posteriorly, is raised into a low crest. The tegmina have reticulate venation and the veins are raised in relief. The tibiae of all 3 pairs of legs are foliaceous and the hind tibiae, which lack spines and spurs, have a fringe of short hairs on each of their outer edges. The ovipositor, which extends well beyond the apex of the folded tegmina, is concave ventrally and tectiform dorsally.

Type species—*Platyledra hirsuta* Evans.

Platyledra hirsuta Evans

(Fig. 17, H)

Platyledra hirsuta Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 40.

Length, ♀, 13-17 mm; face of head sparsely covered with short white hairs; ante-clypeus red, the remainder dull yellow with brown markings. Crown of head pale brown with dark brown markings; at its widest only slightly wider than across the eyes. Tegmen

grey or brown, sometimes apically vitreous, widest in line with the apex of the elaval suture.

Type Location—South Australian Museum.

Type Locality—Ooldea, South Australia.

Known distribution elsewhere—Watning (Western Australia).

Platyledra acuminata (Distant) (comb.nov.)

(Fig. 17, A)

Ledropis acuminata Distant, 1917, Ann.Mag.Nat.Hist. 20: 189.

Length, ♀, 14 mm. General coloration, pale brownish yellow mottled with reddish-brown. Crown of head at its widest point considerably wider than across the eyes. Tegmen widest distally of the apex of the elaval suture.

Type Location—British Museum.

Type Locality—Gayndah, Queensland.

Known distribution elsewhere—Mt Lawley (Queensland).

Ledropsella gen.nov.

The face of the head is longer than wide and the labium reaches as far as the middle coxae. The ante-clypeus is pear-shaped and the lora anteriorly concave and posteriorly convex. The fronto-clypeus, which is oval in shape, is margined by deep channel-like longitudinal depressions. The antennal pits are basin-like depressions and antennal ledges are obsolete.

The crown of the head, which is equal in length to the pronotum, is spatulate. There is a median longitudinal carina which is raised into a small crest in alignment with the ocelli, which are on oblique prominences.

The pronotum, anteriorly, is in alignment with the crown and has 3 longitudinal ridges in line with those on the crown. It is raised posteriorly and has a median longitudinal crest. The propleura form overhanging flaps which partly enfold the face of the head. The scutellum is anteriorly flat and raised posteriorly. The tegmina, which are broadest beyond the apex of the claval sutures, have reticulate venation. The tibiae of all 3 pairs of legs are externally flattened, and the hind tibiae are margined by a row of minute, even spines. The ovipositor does not extend beyond the folded tegmina.

Type species—*Platyledra monstrosa* Evans.

Ledropsella differs from *Platyledra* particularly in the shape of the pronotum.

Ledropsella monstrosa (Evans) (comb.nov.)

(Fig. 17, G)

Platyledra monstrosa Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 45.

Length, ♂, 6 mm. General coloration, dark brown.

Type Location—Macleay Museum, University of Sydney.

Type Locality—King George's Sound, Western Australia.

Rubria Stål

Rubria Stål, 1865, Öfvers.Vetensk.Akad.Förh.Stockh. 22: 158.

Ledracephala Evans, 1947, Trans.Roy.Ent.Soc.London. 98: 252 (syn.nov.).

This genus comprises species which occur in Australia and the Oriental region. There is considerable variation in the shape and proportions of the crown of the head, and sexual dimorphism occurs.

The ante-clypeus narrows anteriorly and extends beyond the margin of the maxillary plates. The post-clypeus widens progressively posteriorly as far as the antennae, which lie posterior to the eyes. The antennal depressions are basin-like and antennal ledges are lacking. An obscure epistomal suture is retained, and the frons, which is ill-defined, is either concave or raised medially. The crown of the head, which is longer in the ♂ than in the ♀, is spatulate and transversely convex, or widely tectiform, with a median longitudinal ridge. It may be as long or more than twice the length of the pronotum. The ocelli are nearer to each other than to the eyes. The pronotum is laterally wide and on a single plane (not humped posteriorly). The tegmina are steeply tectiform and have normal venation, sometimes with accessory costal veinlets. The hind tibiae have 2 widely spaced spines mounted on prominent spurs and a row of evenly spaced long spines.

Type species—*Petalocephala sanguinosa* Stål.

Five species of *Rubria* are briefly described below. It is certain that many more await description.

Rubria sanguinosa (Stål)

(Fig. 17, N)

Petalocephala sanguinosa Stål, 1865, Öfvers.Vetensk.-Akad.Förh.Stockh. 22: 158.

Rubria carnosa Stål, 1865, Öfvers.Vetensk.-Akad.Förh.Stockh. 22: 159 (syn.nov.).

Ledropsis coccinea Butler, 1874, Proc.Zool.Soc.London, 673 (syn.nov.).

Rhotidus monstrum Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 367 (syn.nov.).

Length, ♂, 6-8 mm; ♀, 8-10 mm; length of crown 2·8-3 mm, width of head across eyes 1·8-2 mm. A distinctive slender species uniformly pinkish in colour.

Type Location—Natural History Museum, Vienna.

Type Locality—North Australia.

Known distribution elsewhere—Sydney (New South Wales).

Rubria brevifrons (Walker) (comb.nov.)

(Fig. 17, I, L)

Ledra brevifrons Walker, 1851, List.Homopt.Brit.Mus. 3: 825.

Rhotidus horrendus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 368 (syn.nov.).

Ledracephala brevifrons (Walker), Evans, 1947, Trans.Roy.Ent.Soc.Lond. 98: 252.

Length, ♂, 8·5, ♀, 11·5 mm; crown of head, 2·2 and 3 mm. Crown of ♂, brown mottled with pale yellowish brown; of ♀, green. Pronotum of ♂, concolorous with the crown; of ♀, anteriorly green, posteriorly sometimes brown. Tegmen pale hyaline green.

Type Location—British Museum.

Type Locality—"Australia".

Known distribution elsewhere—King Island (Tasmania); Brighton (Victoria); Kuranda (Queensland); King George's Sound (Western Australia).

Rubria informis (Kirkaldy)

(Fig. 17, J, K)

Rhotidus informis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 367.

Rhotidus ledropsiformis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 367 (syn.nov.).

Rhotidus viridicens Kirkaldy, 1905, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 368 (syn.nov.)

Length, ♂, 7-8 mm; ♀, 9-10 mm, of crown of head 2·8 mm. General coloration brownish yellow (dried specimens). Pronotum sometimes brownish, mottled with yellow. Tegmen hyaline or near opaque. May be distinguished from *R. brevifrons* by having the crown somewhat triangular in shape, and unlike *R. brevifrons*, the sides of the crown immediately in front of the eyes are not parallel with each other.

Type Location—H.S.P.A., Honolulu.

Type Locality—Nelson, Queensland.

Known distribution elsewhere—Brisbane (Queensland); Yanco, Mittagong (New South Wales); Swan River (Western Australia); Kiata, Tallarook (Victoria).

Rubria ingens (Kirkaldy)

(Fig. 17, O)

Rhotidus ingens Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 366.

Rhotidus flavomaculatus Kirkaldy, 1906, Bull.Hawaii, Sug.Ass.Exp. Sta. 1 (9): 367 (syn.nov.).

Length, ♀, 9-12 mm; of crown of head, 2·8-4 mm.

General coloration pinkish brown evenly mottled with yellow. Sometimes there is a partial, or complete, dark reddish-brown band on the tegmen which extends transversely from the neighbourhood of the apex of vein 2A.

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Known distribution elsewhere—Carnavon Ranges (Queensland); Eltham (Victoria).

Rubria smalei sp.nov.

(Fig. 17, M)

Length, ♂, 7·3, ♀, 10·4 mm. Length of crown, 1·2, 2·8 mm.

General coloration (dried specimens), pale brownish yellow, the scutellum mottled with pale brown or reddish-brown. Crown of head with a median longitudinal ridge.

Holotype ♂ and *Allotype* ♀ from Burleigh, Queensland (coll. M. Smale, 11/42), in the Australian Museum.

Rubria smalei differs from *R. sanguinosa*, which it resembles more closely than other species in the genus, in proportions, in having a less apically pointed crown and in the coloration of the scutellum.

Stenocotini

This tribe comprises a group of insects which is confined to Australia. Walker (1851) described a stenocotid (*Ledra conferta*) from Hong Kong and another (*Ledra unicolor*) from the Philippines. Both would seem to be males of *Stenocotis depressa* (Walker) and almost certainly the locality records are incorrect. Stenocotids range in length from 7-24 mm, and, so far as is known, live only on eucalypts, on which they feed on the trunks. The nymphs are almost paper-flat. These insects are immediately recognizable by the venation of their tegmina, in which Cul always has more than the usual 2 branches, and the anal veins usually, as in the Fulgoroidea, form a Y-vein. Occasionally both anal veins terminate separately at the margin of the tegmen, but when this occurs they are still joined together for part of their lengths. The ocelli are situated in marginal depressions and in some species are directed ventrally and in others dorsally.

While the Stenocotini are undoubtedly related to the Ledrini, they probably represent a parallel development from an original ulopid stock and are not secondarily derived from the Ledrini. This suggestion is based, partly in the marginal position of the ocelli, which is the same as in the generalised ulopid, *Moonia* Distant, and partly on the evidence provided by speciation in the ulopid genus, *Coloborrhis* Germar, in Madagascar. (Evans, 1959.)

Key to the Genera of the Stenocotini

1. Crown of head shorter than the pronotum 2
   Crown of head as long, or longer, than the pronotum ..... **Ledracotis** Evans
2. (1) Labium extending beyond the hind coxae 5
   Labium not extending beyond the hind coxae 3
3. (2) Antennal ledges situated between the eyes 4
   Antennal ledges situated considerably posterior to the eyes ..... **Anacotis** Evans
4. (3) Face of head longer than wide; ocelli directed ventrally; scutellum not elevated posteriorly ..... **Smicrocotis** Kirkaldy
   Face of head as wide as long; ocelli directed dorsally; scutellum elevated posteriorly ..... **Khyphoctella** gen.nov.
5. (2) Insects, of either sex, not more than 15 mm in length; pronotum anteriorly declivous; scutellum usually elevated posteriorly ..... **Khyphocotis** Kirkaldy
   ♀ insects not less than 20 mm in length; pronotum almost, and scutellum entirely, flat ..... **Stenocotis** Stål

Stenocotis Stål

Stenocotis Stål, 1854, Öfvers.Vetensk.-Akad.Förh.Stockh. 11: 254.

Stenocotis Stål, 1856, Öfvers.Vetensk.-Akad.Förh.Stockh. 13: 67.

Stenocotis Stål, Distant, 1907, Ann.Soc.Ent.Belg. 51: 194.

Stenocotis Stål, Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 27.

Stenocotis Stål, Evans, 1937, Mem.Queensland Mus. 11: 158.

The labium extends beyond the hind coxae and the maxillary plates narrowly beyond the apex of the ante-clypeus. The maxillary suture is discernible as a transverse fold and the post-clypeus is narrow, parallel-sided and flat. The frons, which is three times as wide as the post-clypeus and extends as far as the hind margin of the face, is raised medially into a ridge. The antennal ledges are oblique and the ocelli, which are in marginal depressions, are visible only in dorsal aspect. The crown is wider in the centre than against the eyes and the eyes are prominent. The pronotum is almost as wide as long and the scutellum is flat. In the tegmina, R1 has numerous costal veinlets, Cu1 has several branches and the anal veins from a Y-vein. The hind tibiae, which are quadrilateral in section, have 3 rows of small marginal spines and a row of 6 flattened spurs with apical spines, which decrease in size from the apex to the base. In the female the abdomen extends slightly beyond the folded tegmina. The males are approximately seven-tenths the lengths of the females. In the male genitalia the sub-genital plates are narrow and parallel-sided and the parameres are less than half the length of the sub-genital plates. The pygophores are broad and have marginal styles.

Type species—*Stenocotis subvittata* Stål (Kirkaldy, 1907).

Stenocotis depressa (Walker)

(Fig. 18, A, B)

Ledra depressa Walker, 1851, List,Homopt.Brit.Mus. 3: 817.

Ledra brevis Walker, 1851, List.Homopt.Brit.Mus. 3: 820 (syn.nov.).

Ledra australis, Walker, 1851, List.Homopt.Brit.Mus. 3: 821 (syn.nov.).

Ledra corticalis Walker, 1851, List.Homopt.Brit.Mus. 3: 314 (syn.nov.).

Ledra varia Walker, 1851, List.Homopt.Brit.Mus. 3: 819.

Ledra ferruginea Walker, 1851, List.Homopt.Brit.Mus. 3: 817 (syn.nov.).

Ledra conferta Walker, 1851, List.Homopt.Brit.Mus. 3: 818 (syn.nov.).

Ledra unicolor Walker, 1851, List.Homopt.Brit.Mus. 3: 819 (syn.nov.).

Stenocotis planiuscula, 1854, Öfvers.Vetensk.-Akad.Förh.Stockh. 11: 254 (syn.nov.).

Stenocotis subvittata Stål, 1854, Öfvers.Vetensk.-Akad.Förh.Stockh. 11: 254 (syn.nov.).

Ledra delineata Walker, 1858, List.Homopt.Brit.Mus.Supplement, 250.

Stenocotis dimorpha Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 27 (syn.nov.).

Stenocotis reticulata Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 27 (syn.nov.).

Length, ♂, 10-15 mm; ♀, 21-24 mm. Coloration, an even pale, chestnut, or dark greyish-brown, or, with an even mottled appearance, or a bold pattern of light and dark brown.

The ♂ is similarly coloured to the ♀ in so far as the head, thorax and the clavus of the tegmen is concerned. The remainder of the tegmen is vitreous with, or without, a brown pattern development.

Type Location—British Museum.

Type Locality—Van Diemen's Land.

Known distribution elsewhere—Widely distributed in every State.

Until a critical study is made of the status of the numerous forms, which differ from each other in size and colour pattern, but not, apparently, in characters furnished by the male genitalia and until the sexes are correlated with each other, it is more satisfactory to regard all forms as constituting a single species of wide distribution in every State than as distinct species.

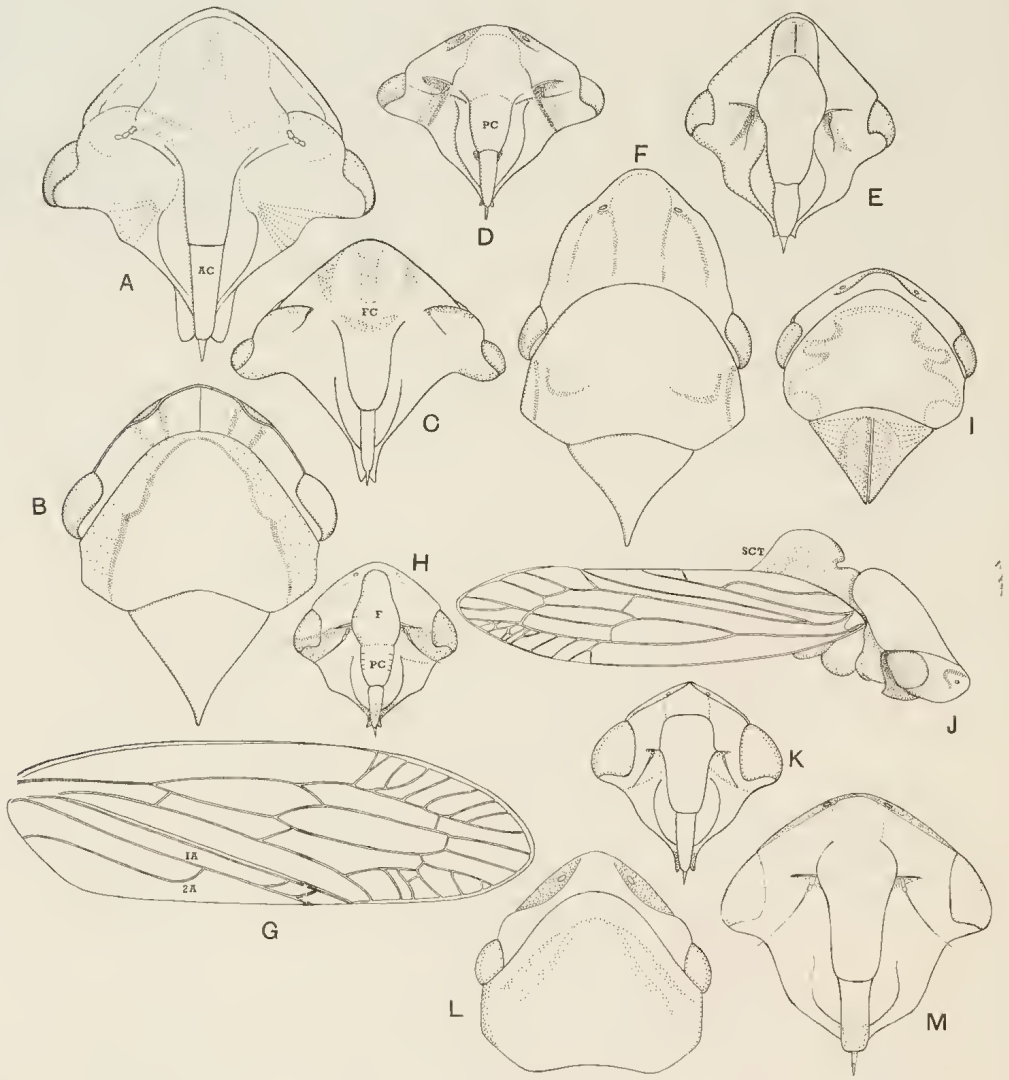


Fig. 18: A, *Stenocotis depressa*, face of head; B, *S. depressa*, head and thorax; C, *Anacotis hackeri*, head; D, *Khyphocotis tessellata*, head; E, *Smicrocotis obscura*, head; F, *Ledracotis gunnensis*, head and thorax; G, *L. gunnensis*, tegmen; H, *Smicrocotis sidnica*, head; I, *Khyphoctella distorta*, head and thorax; J, *K. distorta;* K, *Smicrocotis brunneus*, head; L, *Anacotis hackeri*, head and thorax; M, *Smicrocotis solomoni*, head. AC. ante-clypeus; F, frons; FC, fronto-clypeus; PC, post-clypeus

Kyphocotis Kirkaldy

Kyphocotis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 370.

Kyphocotis Kirkaldy, Evans, 1937, Mem.Queensland Mus. 11: 161.

The labium extends beyond the hind coxae and the face of the head is as wide as long. The post-clypeus is parallel-sided, the antennal ledges transverse and the frons is twice the width of the post-clypeus, which does not extend quite as far as the hind margin of the face. The ocelli are marginal in position and face ventrally. The crown is widest against the eyes. The pronotum, which is at a lower level anteriorly than posteriorly, is rugose posteriorly and laterally has transverse longitudinal ridges. The scutellum is sometimes raised into a crest posteriorly. The venation of the tegmen is as in *Stenocotis*. The ovipositor in the ♀ extends beyond the folded tegmina and the hind tibiae have from 5-7 flattened spurs. The male genitalia are as in *Stenocotis*.

Type species—*Kyphocotis tessellata* Kirkaldy.

The material available for study of representatives of this genus is not only insufficient to permit adequate description of insects of high variability, but also to make it possible to decide whether, or not, 4 specific names are justified. However, while it might be preferable to regard all named forms as belonging to a single species, as has been done in the case of *Stenocotis*, it has been decided, for the time being, to recognize 4 species which may be separated by the following Key:—

1.	Both sexes greater than 9 mm in length	2
	Both sexes 8 mm in length	**parva** Distant
2. (1)	Crown medially excavate	3
	Crown with a slight median ridge	**claudenda** (Walker)
3. (2)	Scutellum considerably raised posteriorly	**tessellata** Distant
	Scutellum slightly raised posteriorly	**nigrescens** (Distant)

Kyphocotis tessellata Kirkaldy

(Fig. 18, D)

Kyphocotis tessellata Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.sta. 1 (9): 371.

Kyphocotis tessellata Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Sta. 3: 28.

Kyphocotis fasciata Distant, 1907, Ann.Soc.Ent.Belg. 51: 196 (syn.nov.).
Length, ♂, 10, ♀, 12-14 mm.

Type Location—H.S.P.A., Honolulu (apparently missing).

Type Locality—Bundaberg, Queensland.

Known distribution elsewhere—Claudie River (Northern Queensland); Ord River (Western Australia).

Kyphocotis claudenda (Walker) (comb.nov.)

Ledra claudenda Walker, 1858, List.Homopt.Brit.Mus.Supplement, 359.

Stenocotis claudenda (Walker), Distant, 1907, Ann.Soc.Ent.Belg. 51: 194.

Length, ♂, 13 mm. Crown of head considerably larger than the crown, flattened; coronal ridge distinct.

Type Location—British Museum.

Type Locality—Moreton Bay, Queensland.

Kyphocotis parva Distant

Kyphocotis parva Distant, 1907, Ann.Soc.Ent.Belg. 51: 197.

Length, ♂, ♀, 8 mm. Crown of head of even length with the eyes; ocelli not visible from above.

Type Location—British Museum.

Type Locality—Queensland.

Kyphocotis nigrescens (Distant)

Stenocotis nigrescens Distant, 1907, Ann.Soc.Ent.Belg. 51: 194.

Length, ♀, 9 mm. Crown of head larger than the eyes; ocelli visible from above in marginal depressions.

Type Location—British Museum.

Type Locality—Queensland.

The remarks made in reference to the difficulty of deciding the limits of species in the genus *Kyphocotis* apply also to species comprised in the genus *Smicrocotis*.

Four species of *Smicrocotis* are likewise recognized, but in the present state of knowledge, and with the limited material available for study, it is impossible to be certain of their true status. Some specimens examined seem to belong to none of the 4 species listed, but, for the time being, it is preferable for them to remain undescribed.

Smicrocotis Kirkaldy

Smicrocotis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 370.

Smicrocotis Kirkaldy, Evans, 1937, Mem.Queensland Mus. 11: 159.

The labium terminates between the middle coxae and the face is longer than wide.

The ante-clypeus and lora are recurved apically and the face is almost evenly slightly convex. The post-clypeus is almost parallel-sided anterior to the antennal ledges, which are short and transverse. The frons, apically, is approximately oval in shape, slightly concave and with a low median ridge. The ocelli are marginal and face forward, or ventrally. The crown is usually widest in the centre, the pronotum almost flat, and the scutellum flat. The venation of the tegmen has, as in *Stenocotis*, a tendency to being reticulate. The hind tibiae have 6 or 7 flattened spurs.

Type species—*Smicrocotis obscura* Kirkaldy.

Key to Species in the Genus Smicrocotis

1. Crown of even length, or slightly longer against the eyes 2
   Crown considerably longer in the centre than against the eyes.. **obscura** Kirkaldy
2. (1) Crown slightly longer against the eyes than in the centre 3
   Crown of even length throughout ..... **sidnica** Kirkaldy

3. (2) In the tegmen, Cu 1 with 2 branches; anal veins not forming a Y-vein..... ..... **brunneus** Evans
In the tegmen Cu 1 with more than 2 branches; anal veins forming a Y-vein..... ..... **solomni** Evans

Smicrocotis obscura Kirkaldy

(Fig. 18, E)

Smicrocotis obscura Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 370.

Smicrocotis infuscata Distant, 1907, Ann.Soc.Ent.Belg. 51: 195.

Smicrocotis pallescens Distant, 1907, Ann.Soc.Ent.Belg. 51: 195 (syn.nov.).

Smicrocotis projecta Distant, 1907, Ann.Soc.Ent.Belg. 51: 196 (syn.nov.).

Length, ♀, 8-13 mm. Crown of head considerably wider in the centre than against the eyes, sometimes laterally sinuate and with a median longitudinal ridge and a pair of lateral oblique ridges; apically upturned, brown. Pronotum and scutellum concolorous with the crown. Tegmen pale brown or greyish, with a pale, or dark brown, scribble pattern and sometimes with oval, white markings of varying size.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Known distribution elsewhere—Tubrabucca, Mt Wilson (New South Wales); Rockhampton (Queensland); Caulfield, Inglewood, Bogong Plains, 6,000 ft (Victoria).

The available material of this species comprises female insects only. These differ from each other only significantly in size. However, as the larger forms were all collected in New South Wales and Queensland and the small forms in Victoria, it is possible that if males were available for genitalia examination it might be possible to recognize more than a single species.

Smicrocotis sidnica Kirkaldy

(Fig. 18, H)

Smicrocotis sidnica Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 28.

Smicrocotis chelonia Evans, 1937, Mem.Queensland Mus. 11: 60 (syn.nov.).

Length, ♂, 7·5-8 mm; ♀, 8·5 mm.

Face of head, reddish-brown mottled with yellowish-brown. Crown of even length throughout, lacking ridges. Pronotum anteriorly grey, yellowish or reddish-brown, with a brown, or black, median longitudinal stripe; posteriorly mottled with dark brown. Tegmen hyaline, or greyish, regularly mottled with light or dark brown.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Known distribution elsewhere—National Park, 3,500 ft (Tasmania); Upper Manning River (New South Wales); Timber Top, Bogong Plains, 5,500 ft, Eltham (Victoria).

Smicrocotis solomoni Evans

(Fig. 18, M)

Smicrocotis solomoni Evans, 1937, Mem.Queensland Mus. 11: 160.

Length, ♂, 7 mm. Face of head evenly convex, pale yellowish-brown mottled with black and reddish-brown; antennal depressions black; ocelli on face, directed ventrally; epistomal suture discernible. Crown of head short, longest against the eyes, yellowish-white with reddish-brown markings. Pronotum, yellowish-white, mottled with black and pale orange brown. Scutellum pale yellowish-brown. Tegmen, whitish-hyaline, with irregular scattered brownish-black areas; veins brown with raised white spots.

Type Location—Queensland Museum.

Type Locality—Crawley, Western Australia.

Smicrocotis brunneus (Evans) (comb.nov.)

(Fig. 18, K)

Kyphocotis brunneus Evans, 1947, Trans.R.Ent.Soc.London, 98: 252.

Length, ♂, 7 mm. Face of head black mottled with light and dark brown; crown with a pair of oblique lateral ridges and a sharp, upturned, anterior rim-like margin, slightly wider against the eyes than in the centre. Pronotum brown, mottled with black in the centre, and at the sides posteriorly. Scutellum flat. Tegmen whitish hyaline, partially suffused with light and dark brown; veins brown. Venation of tegmen, Cu 1 with 2 branches and anal veins, though linked distally by a cross-vein, each extending as far as the anal margin. Hind tibiae with 4 spines mounted on prominent bases.

Type Location—British Museum.

Type Locality—Sydney, New South Wales.

Anacotis Evans

Anacotis Evans, 1937, Mem.Queensland Mus. 11: 161.

The labium extends as far as the middle coxae and the face of the head is as long as wide. The maxillary plates narrowly extend beyond the ante-clypeus. The antennal ledges, which are situated considerably posterior to the eyes, are curved. The post-clypeus is slightly raised posteriorly and the frons is concave with a median longitudinal ridge. The crown is widest in the centre and the ocelli, which are on the crown, are situated on the sides of outwardly facing ridges, and the eyes are prominent. The pronotum and scutellum are transversely striated and the latter is raised into a low hump posteriorly. The venation of the tegmen is as in *Stenocotis*. The fore and middle femora are flattened and the hind tibiae have eleven flattened spurs. The subgenital plates are short and narrow and do not extend as far as the apex of the pygophores.

Type species—*Anacotis hackeri* Evans.

Anacotis hackeri Evans

(Fig. 18, L)

Anacotis hackeri Evans, 1937, Mem.Queensland Mus. 11: 162.

Length, ♂, 12 mm. Face of head anteriorly black, posteriorly straminaceous. Crown of head pale brown. Pronotum pale brown with narrow, dark brown markings. Scutellum

ale brown. Tegmen vitreous, excepting the costal margin, which is pale brown and the ostal and anal areas proximally, which are suffused with yellowish-brown.

Type Location—Queensland Museum.

Type Locality—Brisbane, Queensland.

Ledracotis Evans

Ledracotis Evans, 1937, Mem.Queensland Mus. 11: 162.

The head, pronotum and scutellum are coarsely rugose. The labium terminates etween the hind coxae and the face is longer than wide. The maxillary plates, which arrowly enfold the ante-clypeus anteriorly, do not extend beyond it. The post-clypeus is lmost parallel-sided and widest between the antennal ledges, where it is laterally curved. he frons, which is parallel-sided and declivous has a central longitudinal ridge at its apex. he anterior tentorial pits are exposed. The crown is approximately equal in length with the ronotum, is medially depressed and has a pair of lateral longitudinal ridges which bear the celli at their anterior apices. The pronotum is raised posteriorly, the raised part being ansversely striated and the scutellum is flat. The venation of the tegmen is as in *Stenocotis* nd the abdomen of the ♀ extends beyond the folded tegmina. The hind tibiae have 5 attened spurs.

ype species—*Ledracotis gunnensis* Evans.

Ledracotis gunnensis Evans

(Fig. 18, F. G)

edracotis gunnensis Evans, 1937, Mem.Queensland Mus. 11: 162.

Length, ♀, 15-17 mm. General coloration brown. Head and thorax coarsely rugose. egmen brown with sparse pubescence.

ype Location—Macleay Museum, University of Sydney.

ype Locality—Gunning, New South Wales.

nown distribution elsewhere—Cheltenham (New South Wales); Warburton district, Warragul Victoria).

Kyphoctella gen.nov.

The labium extends to the base of the hind coxae. The maxillary plates narrowly nfold the ante-clypeus and the post-clypeus is flat and depressed below the level of the genae. he maxillary suture is discernible as a transverse ridge. The genae are convex and the ons, which is parallel-sided and concave, extends to the posterior apex of the face of the head. he head from above has a hooded appearance and is rugose. The true crown is narrowly iangular and is continuous with the vertex laterally as far as the antennal ledges. The celli are marginal and dorsally directed. The pronotum is declivous and transverscly striated. he scutellum is raised into a high crest. The venation is as in *Stenocotis*, excepting that both nal veins, though converging in the middle of the clavus, may also separately extend to the nal margin. The hind tibiae are flattened and have 4 spurs and a fringe of long spines.

ype species—*Kyphoctella distorta* sp. nov.

Kyphoctella distorta sp.nov.

(Fig. 18, I, J)

Length, ♀, 10 mm. Head and thorax pale or dark brown. Tegmen vitreous; veins brown with white bars.

Holotype ♀, from Adelaide River, Northern Territory (coll. Sgt Kent) in the South Australian Museum.

Known distribution elsewhere: Groote Eylandt; Coen (North Queensland).

Thymbrini

The Thymbrini are a group of robust insects which range in length from 5-16 mm. In colour they are various shades of black, brown, orange and green and often have a mottled appearance. The ante-clypeus is often depressed below the level of the post-clypeus and the lora. The antennal ledges are prominent, and transverse or oblique. The ocelli lie posterior to a transverse ridge and may be ventral, marginal or dorsal in position, depending on the shape of the crown of the head, which may be rounded and declivous, arrow-shaped or narrowly produced. The pronotum is flat, or declivous, and the scutellum flat. The tegmina always have normal cicadellid venation (Fig. 19, A2), and the hind tibiae, which are heavily armed with spines, have 1 row mounted on enlarged bases, which decrease in size from the apex to the base. Representatives of this tribe, with the exception of species in the genus *Novothymbris*, which occur in New Zealand, and a few species recorded from New Guinea, are confined to Australia. Thymbrids, like several other groups of Australian leafhoppers, are in a phase of active evolutionary change. While, for the most part, genera can be readily determined, species recognition depends on the examination of the male genitalia.

Key to the Genera of the Thymbrini Occurring in Australia

1. Green insects ..... **Hackeriana** Evans
   Brown, or, black insects, sometimes with white markings 2

2. (1) Insects, more than 6 mm in length 4
   Insects, 6 mm or less, in length 3

3. (2) Crown of head widest in the centre, not separated from the face by a sharp ridge; ocelli marginal, directed forwards ..... **Epipschydion** Kirkaldy
   Crown of equal width with the eyes, separated from the face by a sharp ridge; ocelli on crown of head ..... **Ledrella** Evans

4. (2) Crown of head produced into a long, narrow conical structure which is more than twice the length of the pronotum ..... **Ledraprora** Evans
   Crown not as above 5

5. (4) Crown broadly arrow-shaped, somewhat declivous, not continuous with the face; ocelli on the crown ..... **Rhotidus** Stål
   Crown not as above 6

6. (5) Insects resembling *Rhotidus* spp. except that the crown is not broadly arrow-shaped, is less sharply separated from the face, and the pronotum is more declivous; ocelli on the crown ..... **Thymbris** Kirkaldy
   Not as above 7

7. (6) Pronotum flat, or almost so ..... **Putoniessa** Kirkaldy
Pronotum declivous 8

8. (7) Pronotum, crown and face of head forming one curved surface; crown widest against the eyes ..... **Macroceps** Signoret
Not as above 9

9. (8) Pronotum steeply declivous, forming a continuous curved surface with the vertical crown; ocelli in marginal depressions ..... **Mitelloides** Evans
Not as above; a narrow distinct dorsal crown, widest against the eyes, or as wide in the centre as against the eyes 10

10. (9) Pronotum evenly rounded ..... **Rhotidoides** Evans
Pronotum anteriorly depressed and in alignment with the crown 11

11. (10) Ocelli situated in shallow depressions, forwardly directed.... **Stenalsella** gen.nov.
Ocelli not in depressions, ventrally directed ..... **Alseis** Kirkaldy

Ledrella Evans

Ledrella Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 40.

The ante-clypeus and lora are anteriorly re-curved. The post-clypeus, which is almost parallel-sided, widens slightly posteriorly. The antennal ledges, which are prominent, are curved and in line with the centre of the eyes. Posterior to the antennal ledges the fronto-clypeus slopes steeply to the hind margin of the face and there is, posteriorly, a short, median longitudinal ridge. The crown of the head, which is of equal width with the eyes, is declivous and sharply separated from the face by an apical ridge. The ocelli are on the crown, somewhat closer to the eyes on each side than to each other. The pronotum is anteriorly declivous and forms a continuous curved surface with the crown. It is approximately four times the length of the crown. The hind tibiae are flattened externally and have 5 spurs and 5 strong spines facing the spurs on the opposite margin.

Type species—*Ledrella brunnea* Evans.

Ledrella brunnea Evans

(Fig. 19, N)

Ledrella brunnea Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 40.

Length, ♂, 5 mm. Face of head rugose. General coloration pale brown. Tegmen hyaline; veins brown with white bars.

Type Location—Australian Museum.

Type Locality—Kiata, Victoria.

Known distribution elsewhere—Perth (Western Australia).

Ledraprora Evans

Ledraprora Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 40.

This genus is clearly derived from *Ledrella*. The crown of the head is narrowly conically produced and is three times the length of the pronotum. The ocelli are on the sides of the crown and approximately the same distance from the eyes as the width of the eyes. The hind tibiae are similar in shape and armature to those of *Ledrella*.

Type species—*Ledraprora insularis* Evans.

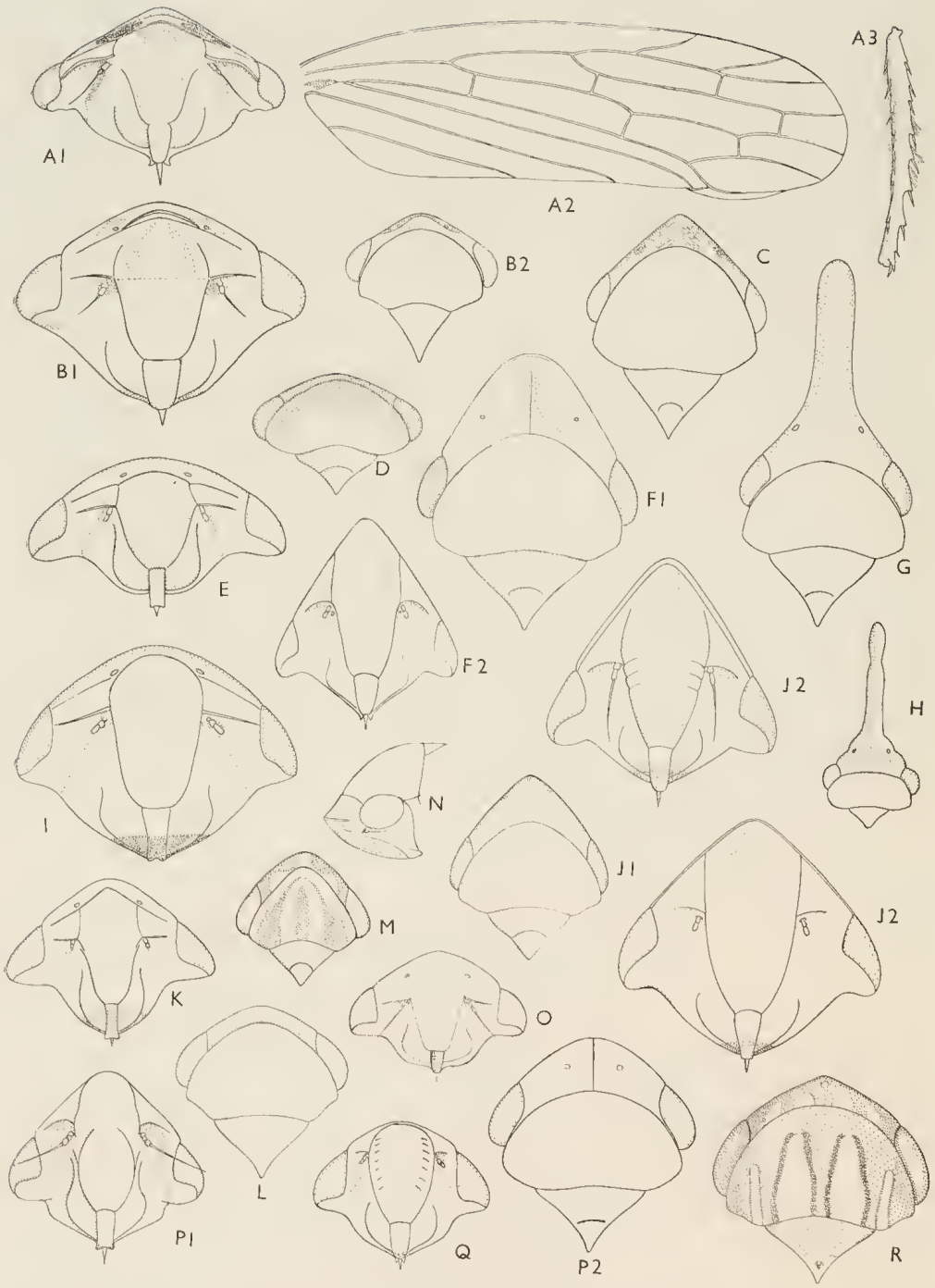


Fig. 19: A1, *Mitelloides moaensis*, head; A2, *M. moaensis*, tegmen; A3, *M. moaensis*, hind tibia; B1, *Stenalsella testacea*, head; B2, *S. testacea*, head and thorax; C, *Thymbris convivus*, head and thorax; D, *Macroceps tonnoiri*, head and thorax; E, *Macroceps fasciatus*, head; F1, *Rhotidus teleformis*, head and thorax; F2, *R. teleformis*, head; G, *Ledraprora compressa*, head and thorax; H, *Ledraprora insularis*, head and thorax; I, *Rhotidoides punctivena*, head; J1, *Hackeriana huonensis*, head and thorax; J2, *H. huonensis*, head; K, *Putoniessa nigra*, head; L, *Rhotidoides punctivena*, head and thorax; M, *Putionessa galliensis*, head and thorax; N, *Ledrella brunnea*, head and thorax; O, *Alseis osborni*, head; P1, *Novothymbris zealandica*, head; P2, *N. zealandica*, head and thorax; Q, *Novothymbris cassiniae*, head; R, *Epipychidion epipyropis*, head and thorax.

Ledraprora insularis Evans

(Fig. 19, H)

Ledraprora insularis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 41.

Length, ♀, 9·5 mm, of crown of head, 3·3 mm. General coloration, brown. Anterior prolongation of head apically rounded, with 2 lateral swellings and with dorsal and ventral keels. Anterior margin of pronotum, only slightly anteriorly arched. Tegmen pale hyaline-brown; veins brown with white bars.

Type Location—South Australian Museum.

Type Locality—Kangaroo Island.

Ledraprora compressa Evans

(Fig. 19, G)

Ledraprora compressa Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 45.

Length, ♀, 7 mm; of crown of head, 2 mm. Face of head pale brown, rugose. Anterior prolongation of crown diamond-shaped in section, tilted dorsally. Pronotum brown, posteriorly mottled with grey. Scutellum brown. Tegmen whitish-hyaline; veins brown barred with white.

Type Location—Macleay Museum, University of Sydney.

Type Locality—King George's Sound, Western Australia.

Ledraprora victoriensis Evans

Ledraprora victoriensis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 41.

Length, ♀, 10 mm, of crown of head, 4 mm. General coloration brown. Anterior prolongation of head approximately circular in section, lacking swellings and keels. Anterior margin of pronotum arched between the eyes. Tegmen hyaline-yellowish; veins pale and dark brown with regularly spaced pale bars.

Type Location—Australian Museum.

Type Locality—Kiata, Victoria.

Alseis Kirkaldy

Alseis Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 30, 37.

The face of the head is wider than long, the ante-clypeus depressed and the lora swollen. The sides of the fronto-clypeus are almost parallel, the antennal ledges oblique and the labium terminates between the middle coxae. Lateral frontal sutures are present but the fronto-clypeus posteriorly is continuous with the vertex. The transverse ridge characteristic of the Thymbrini is indistinct and the ocelli are marginal in position, facing forwards. The crown of the head is apically acute and widest in the centre. The pronotum is slightly declivous and depressed behind the eyes. This genus differs from *Ledrella*, in having the crown of the head not sharply differentiated from the face, and from *Macroceps* in having a less steeply declivous pronotum and angulate head.

Type species—*Alseis osborni* Kirkaldy.

Alseis osborni Kirkaldy

(Fig. 19, O)

Alseis osborni Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 38.

Length, ♂, ♀, 8, 8·7 mm. General coloration pale parchment mottled with brown Tegmen, whitish-hyaline sparsely, and evenly, mottled with brown; clavus punctate basally;

Type Location—H.S.P.A., Honolulu.

Type Locality—Brisbane, Queensland.

Known distribution elsewhere—Gatton (Queensland).

Female specimens of several undescribed species belonging to this genus are known but need to await description until male insects become available.

Macroceps Signoret

Macroceps Signoret, 1879, Ann.Soc.Ent.Fr. (5) 9: 53, (5) 10: 363.

The face of the head is wider than long. The ante-clypeus is depressed below the lora and post-clypeus and anteriorly re-curved. The fronto-clypeus, which is parallel-sided is convex anteriorly. The vertex is sometimes vertical in position and approximately a right angles with the face. The ocelli are anteriorly directed. From above, the head is visible only narrowly against the eyes. The pronotum is steeply declivous and evenly convex

Type species—*Macroceps fasciatus* Signoret.

Macroceps fasciatus Signoret

(Figs. 19, E, 20, I)

Macroceps fasciatus Signoret, 1880, Ann.Soc.Ent.Fr. 5 (10): 364.

Length, ♂, 5·5, ♀, 5-6·8 mm. General coloration chestnut-brown. Face of head posteriorly, and pronotum, sometimes pale brown. Vertex of head vertical. Tegmen hyaline-brown with an oblique white fascia extending from the anal angle to the costal border. Male genitalia as in Figure 20, I.

Type Location—Natural History Museum, Vienna.

Type Locality—" Australia ".

Known distribution elsewhere—Stanthorpe, Maryborough (Queensland); Kangerilla (South Australia); Cabramatta (New South Wales).

Macroceps tamarensis Evans

(Fig. 20, G)

Macroceps tamarensis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 67.

Length, ♂, 5·5, ♀, 6·6 mm. General coloration mottled brown. A narrow, but distinct, crown developed. Pronotum not as steeply declivous as in the type species, together with scutellum, mottled brown. Male genitalia as in Figure 20, G.

Type Location—South Australian Museum.

Type Locality—Launceston, Tasmania.

Known distribution elsewhere—Lake St Clair, Tasman Peninsula, Snug (Tasmania).

Macroceps tonnoiri Evans

(Fig. 19, D)

Macroceps tonnoiri Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 66.

Length, ♀, 7 mm. Head evenly brown, or a mottled appearance, with a sloping crown, longest against the eyes. Pronotum anteriorly declivous but not steeply so, light brown mottled with dark brown, sometimes with a broad median longitudinal black stripe. Scutellum, chestnut-brown. Tegmen opaque or hyaline, with white, brown and black markings; usually there is a broad white proximal fascia extending from the costal margin to the anal margin adjacent to the scutellum; veins brown with black bars.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Mt Kosciusko, New South Wales.

Known distribution elsewhere—Warburton (Victoria); Barrington Tops (New South Wales).

Macroceps darwinensis sp.nov.

(Fig. 20, H1, H2)

Length, ♂, 6·2, ♀, 8 mm. Face of head entirely dark brown, or dark reddish-brown, or in part pink and in part brown. Vertex facially situated, except for a narrow crown, longest against the eyes.

Pronotum not steeply declivous, ochreous in ♂; in ♀ grey with dark brown, or black, markings and with scribbled pale brown markings. Scutellum evenly brown or reddish-brown. Tegmen pale greyish-hyaline, irregularly mottled with brown, the brown markings denser in ♂ than in ♀; veins brown, in part white. Male genitalia as in Fig. 20, H1, H2.

Holotype ♂ and *Allotype* ♀ from Darwin, Northern Territory (coll. E. Reye) in the Australian Museum.

Stenalsella gen.nov.

The face of the head is wider than long and the labium extends to between the middle coxae. The ante-clypeus and lora, which are slightly declivous anteriorly, are on the same plane as the post-clypeus. The post-clypeus is almost flat and an obscure transverse epistomal suture is discernible. This is in alignment with the strong transverse antennal ledges. The frons is rectangular, and the hind margin, which is discernible, is separate from the angulate transverse facial ridge. The ocelli, which lie in shallow depressions immediately posterior to this ridge, are in alignment with the antennae and are directed anteriorly and not facially. The crown is sometimes narrowly produced, so that its length in the centre may be equal to its length against the eyes. The pronotum, which is slightly declivous and anteriorly depressed, has deep transverse striations, and the scutellum is slightly raised posteriorly. In the tegmina the anal veins form a Y-vein. In the female the ovipositor extends slightly beyond the folded tegmina.

Type species—*Stenalsella testacea* sp.nov.

Stenalsella, which is closely related to *Alseis* and *Macroceps*, differs from these genera in that the ante-clypeus is not depressed below the level of the post-clypeus; in the retention of an obscure epistomal suture, and in having the hind margin of the frons separate from the posterior transverse facial ridge. It resembles certain genera in the Stenocotini in the possession of a Y-vein in the clavus and in having the ocelli in marginal depressions.

Stenalsella testacea sp.nov.

(Fig. 19, B1, B2)

Length, ♂, 7-8 mm; ♀, 8-9 mm. General coloration, pale yellowish-brown irregularly mottled with dark brown, or whitish mottled with brown and sometimes with a wide median longitudinal band extending from the anterior margin of the pronotum to the base of the scutellum. Tegmen whitish, yellowish, brownish, or colourless hyaline; veins brown; sometimes with pale bars. Clavus sometimes basally whitish and punctate and with reticulate venation.

Holotype, ♂, from Mt Glorious, Queensland, in the Queensland Museum.

Additional specimens from Iluka Rain Forest, Clarence River and National Park, New South Wales.

Epipsychidion Kirkaldy

Epipsychidion Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 345.

This genus is closely related to *Macroceps*. It differs in having the head evenly longitudinally convex with the ocelli ventrally directed and not in 3 planes as in *Macroceps*. The pronotum is depressed posterior to the eyes.

Type species—*Epipsychidion epipyropis* Kirkaldy.

Epipsychidion epipryopis Kirkaldy

(Fig. 19, R)

Epipsychidion epipryopis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 346.

Epipsychidion epipyropis Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 37.

Length, ♀, 6 mm. Face of head pale brown; fronto-clypeus and vertex rugose. Crown, brown with indistinct greyish markings posteriorly. Thorax with a bold, characteristic colour pattern; the pronotum with a pair of central broad, and a pair of lateral narrow, longitudinal white stripes, margined with brown. The central stripes continue narrowly onto the scutellum and the lateral ones onto the clavus of the tegmen. Tegmen hyaline, pale brown proximally; veins entirely brown, or part white and part dark brown. Abdomen, in ♀, extending slightly beyond the folded tegmina.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Known distribution elsewhere—Wandong, Baxter (Victoria).

Putoniessa Kirkaldy

Putoniessa Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 50.

The face of the head is wider than long, the labium terminates between the middle coxae and the ante-clypeus and the lora are recurved anteriorly. The fronto-clypeus, which is almost parallel-sided, but widens slightly posteriorly, is flat or slightly convex. The antennal ledges are distinct but not prominent and the antennal depressions shallow. The hind margin of the fronto-clypeus is distinct and is bordered by a well or ill-defined ridge, which extends to the eyes on each side and which is parallel with the antennal ledges. The

ocelli are on the face of the head, posterior to the transverse ridge and immediately behind the frontal sutures. The crown which is narrow, is longest against the eyes. The pronotum is flat or slightly declivous. The hind tibiae have 9 spurs of which the basal three are very small. In the male genitalia the aedeagi are extremely diverse in shape. This suggests that the genus, as here defined, is a composite one and requires critical study to determine the inter-relationships of the several comprised species.

Type species—*Putoniessa dignissima* Kirkaldy.

Several of the twelve species ascribed to this genus resemble others very closely in general appearance and their recognition is possible only by means of examination of the male genitalia.

Putoniessa rivularis (Walker)

(Fig. 20, R)

Bythoscopus rivularis Walker, 1851, List.Homopt.Brit.Mus. 3: 865.

Bythoscopus dorsalis Walker, 1851, List.Homopt.Brit.Mus. 3: 867.

Bythoscopus repletus Walker, 1858, List.Homopt.Brit.Mus.Supplement 267.

Putoniessa dignissima Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 50 (syn.nov.).

Length, ♂, 8-8·8 mm; ♀, 9-10·5 mm. General coloration drab mottled brown, or, greyish brown. Face of head anteriorly dark brown; fronto-clypeus and vertex pale brown with dark brown markings; lora, maxillary plates and genae, pale brown. Crown of head, pronotum and scutellum greyish-brown, or pale greyish-yellow irregularly mottled with dark brown; crown raised above level of anterior margin of pronotum. Tegmen, hyaline, densely and evenly marked with pale and dark brown. Male genitalia as in Fig. 20, R.

Type Location—British Museum.

Type Locality—New South Wales.

Known distribution elsewhere—Leura, Pt Hacking (New South Wales); Meredith, Warandtye (Victoria); Hobart (Tasmania); W. Midland (Western Australia).

Putoniessa nigra (Walker)

(Figs. 19, K, 20, V, W)

Gypona nigra Walker, 1862, J.Ent. 1: 319.

Length, ♂, 10, ♀, 12 mm. General coloration, black. Head, pronotum and scutellum black with scattered, small, evenly distributed yellowish-brown markings. Tegmen, clavus concolorous with the head and thorax, the remainder black with oval and irregularly-shaped small greyish-white areas. Male genitalia as in Fig. 20, V, W.

Type Location—British Museum.

Type Locality—Moreton Bay, Queensland.

Collected on Melaleuca.

Putoniessa galliensis Evans

(Fig. 19, M)

Putoniessa galliensis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 65.

Length, ♀, 7 mm. General coloration pale brown with longitudinal white stripes. Face of head pale whitish-yellow mottled with pale brown anterior to the antennal ledges; posteriorly, as far as the apical transverse ridge, black. Crown reddish-brown with 3 pale areas against the hind margin. Pronotum, anteriorly and laterally, pale yellowish-white; remainder mottled with light and dark brown and with 2 broad, greyish longitudinal stripes. The striped pattern is continued onto the scutellum and tegmen, which is pale and dark brown with greyish longitudinal stripes.

Type Location—Australian Museum.

Type Locality—Leura, New South Wales.

Putoniessa maculata Evans

(Fig. 20, N)

Putoniessa maculata Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 65.

Length, ♂, 8-9 mm; ♀, 11 mm. General coloration black with prominent white markings which are best developed in the ♂. Head, fronto-clypeus, vertex and genae dark brown, or black, mottled with pale brown; remainder pale brownish-yellow with irregular brown markings. Crown of head, pronotum and scutellum grey or greyish-brown with a dark brown, or black, scribbled pattern. Tegmen black with oval, hyaline-grey and brown areas, or largely hyaline-grey, irregularly mottled with black and brown; an oblique broad anterior white fascia, a transverse interrupted posterior white fascia and a white marking on the hind margin of the oval area. The fasciae may be well developed or indistinct, and the posterior one may be absent; veins brown. Male genitalia as in Figure 20, N.

Type Location—Australian Museum.

Type Locality—Seven-mile Beach, Tasmania.

Known distribution elsewhere—Tubrabucca, Mt Victoria (New South Wales); Baxter, Mt Cobrunga (Victoria).

Putoniessa nota Evans

(Fig. 20, Q)

Putoniessa nota Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 151.

Length, ♂, 7 mm. Face of head black mottled with dull yellow anterior to the posterior transverse ridge; posteriorly pale pinkish-white, sparsely mottled with dark brown. Crown longer against the eyes than in the centre. Pronotum grey mottled with dark brown. Scutellum reddish-brown mottled with black. Tegmen greyish-hyaline mottled with brown; veins pink with brown and white bars and a series of evenly spaced white spots against the costal border. Male genitalia, pygophore approximately rectangular with a dorsally directed apical process, as in Figure 20, Q.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Putoniessa mackei sp.nov.

(Fig. 20, S)

Length, ♂, 7 mm. Face of head black with yellowish-brown and brown markings; anterior apex of head, yellowish brown. Pronotum black with 6 narrow pale brown longitudinal stripes, of which the 2 central ones meet anteriorly and posteriorly continue onto the scutellum. Tegmen black, with a few irregular bold white markings and a series of small oval hyaline areas in the costal region and apically, and with yellow spots alongside some of the veins. Male genitalia as in Fig. 20, S.

Holotype— ♂, from Stanthorpe, Queensland (coll. E. Sutton, 10/10) in the Queensland Museum.

Putoniessa taradalensis sp.nov.

(Fig. 20, O)

Length, ♂, 9 mm. Face of head anterior to the antennal ledges, pale yellowish, mottled laterally with pale brown; medially black; posteriorly, to the antennal ledges, a transverse black, or, dark brown band, followed by a yellowish-white band on which the ocelli are situated. Pronotum, whitish laterally, remainder greyish-brown with irregular longitudinal black and brown markings. Scutellum, laterally dark brown, medially mottled light and dark brown with 3 whitish longitudinal stripes in alignment with 3 pale markings on the crown. Tegmen longitudinally streaked with black and grey; veins brown. Male genitalia as in Fig. 20, O.

Holotype ♂, from Taradale, Victoria (coll. F. E. Wilson 12/11/39), in the National Museum of Victoria.

Putoniessa minima sp.nov.

(Fig. 20, P)

Length, ♂, 6·8 mm. Face of head, other than the fronto-clypeus, pale yellowish-brown mottled with brown; fronto-clypeus brown, sparsely mottled with brown. Crown of head, thorax and tegmen, greyish, with irregular longitudinal coffee-brown markings. Male genitalia as in Fig. 20, P.

Holotype ♂, from National Park, Macpherson Ranges, Queensland (coll. A. Musgrave, 12/26), in the Australian Museum.

Putoniessa sordida sp.nov.

(Fig. 20, X)

Length, ♂, 9 mm. Face of head, except for the maxillary plates and genae, which are yellowish-brown, black evenly mottled with brown. Crown and thorax brown, finely and evenly mottled with black. Tegmen whitish hyaline, finely and evenly mottled with brown. Male genitalia as in Fig. 20, X.

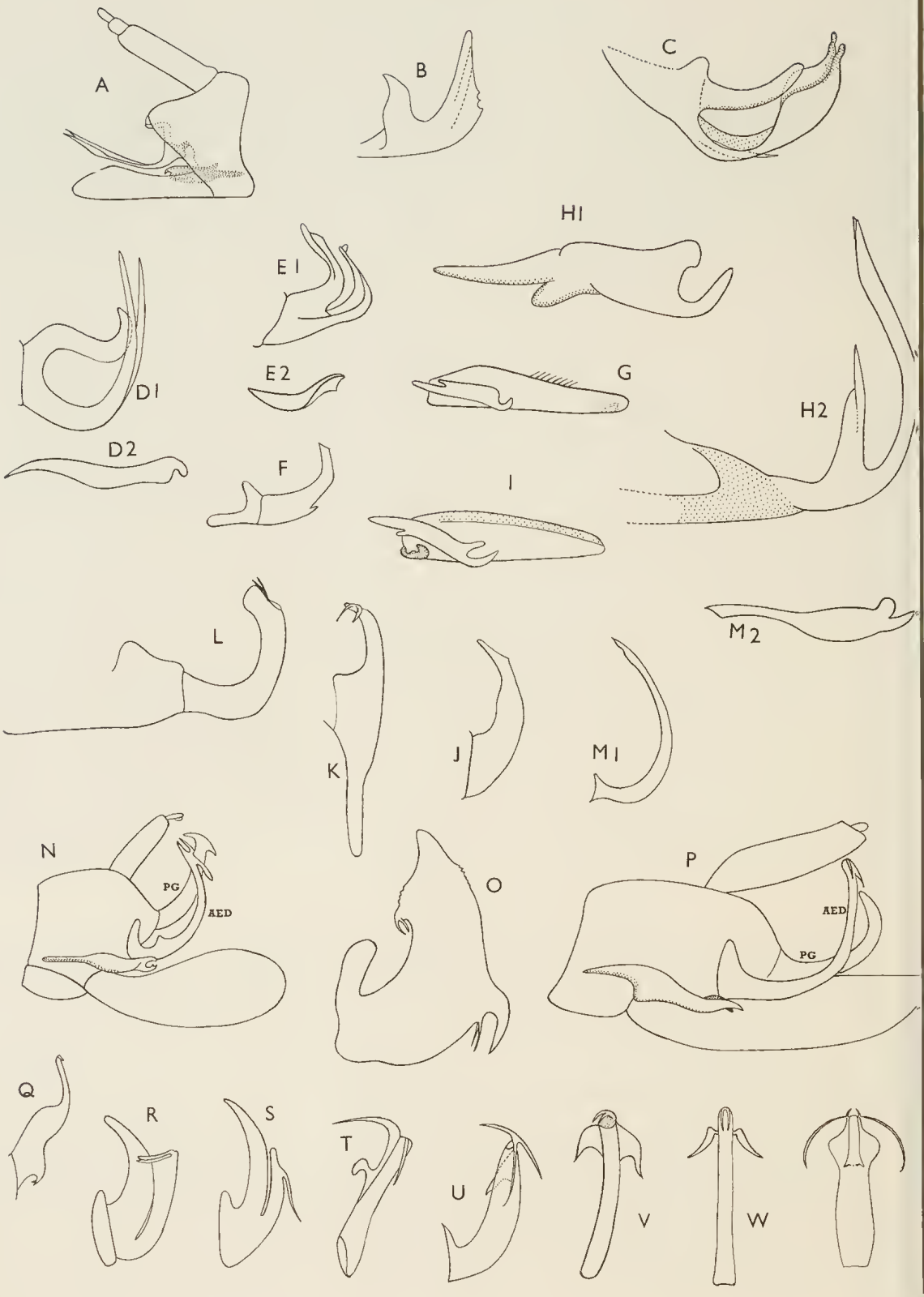
Holotype ♂ from Capel, Western Australia (coll. P.N.F., 1/41) in the Australian National Insect Collection, Canberra.

Putoniessa draba sp.nov.

(Fig. 20, T)

Length, ♂, 8·8 mm. Closely resembling the type species; differing in having the anterior border of the pronotum on the same plane as the crown of the head and in characters furnished by the male genitalia. Male genitalia as in Fig. 20, T.

Holotype ♂, from Purnong, Murray River, South Australia (coll. S.A. Fulton, 7/12), in the National Museum of Victoria.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Putoniessa nigrella sp.nov.

(Fig. 20, U)

Length, ♂, 7·6 mm. Closely resembling *P. nigra* in coloration but differing in its smaller size and in characteristics furnished by the male genitalia. Male genitalia as in Fig. 20, U.

Holotype ♂, from Bargo Forest, near Batlow, New South Wales (coll. C. Rosegger) in the Australian Museum.

Known distribution elsewhere—Hobart (Tasmania); Forrest (Victoria).

Rhotidoides Evans

Rhotidoides Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 59.

The face of the head is wider than long, the labium terminates between the middle coxae and the lora and ante-clypeus are anteriorly recurved. The fronto-clypeus, which may be raised above the ante-clypeus, is flat or slightly convex; its hind margin forms part of a transverse ridge which may be well, or, ill-defined and extends to the eyes on each side and is marginal in position. The ocelli are marginal, facing forwards or ventrally. The crown, which is not sharply separated from the face of the head, is of even length, or longest against the eyes. The head is evenly rounded in profile. The pronotum is slightly declivous and the hind tibiae have 7 spurs.

Type species—*Rhotidoides norfolkensis* Evans.

Rhotidoides punctivena (Walker) (comb.nov.)

(Fig. 19, I, L: 20, L)

Bythoscopus punctivena Walker, 1858, Ins. Saund. Homopt. 104.

Thymbris iphianassa Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 50 (syn.nov.).

Rhotidoides norfolkensis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 60 (syn.nov.).

Length, ♂, ♀, 9-9·5 mm. Face of head pale brownish-yellow, sometimes flecked with brown; crown declivous. Pronotum brown, with small circular and narrow transverse white markings; in length, greater than one-half the width, slightly declivous. Tegmen pale, or dark, hyaline-brown with white spots on the veins and sometimes finely mottled with white. Male genitalia as in Fig. 20, L.

Type Location—British Museum.

Type Locality—New South Wales.

Known distribution elsewhere—Colong, Tubrabucca, Sydney (New South Wales); Frankston, Langworrin (Victoria); New Norfolk (Tasmania); Sunnybank (Queensland).

OPPOSITE

Fig. 20: A, *Thymbris melvillensis*, male genitalia; B, *Thymbris rieki*, aedeagus; C, *Thymbris convivus*, aedeagus; D1, *Hackeriana glauca*, aedeagus; D2, *H. glauca*, paramere; E1, *Hackeriana huonensis*, aedeagus; E2, *H. huonensis*, paramere; F, *Hackeriana translucens*, aedeagus; G, *Macroceps tamarensis*, subgenital plate and paramere; H1, *Macroceps darwinensis*, paramere; H2, *M. darwinensis*, aedeagus; I, *Macroceps fasciatus*, subgenital plate and paramere; J, *Rhotidoides montana*, aedeagus; K, *Rhotidoides sidnica*, aedeagus; L, *Rhotidoides punctivena*, aedeagus; M1, *Rhotidoides dongarrensis*, aedeagus; M2, *R. dongarrensis*, paramere; N, *Putoniessa maculata*, male genitalia; O, *Putoniessa taradalensis*, aedeagus; P, *Putoniessa minima*, male genitalia; Q, *Putoniessa nota*, aedeagus; R, *Putoniessa rivularis*, aedeagus; S, *Putoniessa mackei*, aedeagus; T, *Putoniessa traba*, aedeagus; U, *Putoniessa nigrella*, aedeagus; V, W, *Putoniessa nigra*, aedeagus; X, *Putoniessa sordida*, aedeagus.

Rhotidoides montana Evans

(Fig. 20, J)

Rhotidoides montana Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 60.

Length, ♂, 6·5-7 mm; ♀, 8 mm. Face of head, in ♂, black or dark brown mottled with pale brown, with a broad transverse pale yellowish, or greyish, stripe between the antennal ledges and the marginal transverse ridge; in ♀, pale brown evenly mottled with brown. Crown declivous, visible only adjacent to the eyes. Pronotum almost flat, pale brown, evenly and densely mottled with dark brown; in length less than half the width. Tegmen pale hyaline brown, or whitish, densely, finely and evenly mottled with light or dark brown. Male genitalia as in Fig. 20, J.

Type Location—Australian Museum.

Type Locality—Mount Wellington, Tasmania.

Known distribution elsewhere—Barrington Tops, Mt Victoria, Mt Kosciusko, Sydney (New South Wales); Macedon, Mt St Bernard, Mt Buffalo (Victoria).

Rhotidoides sidnica Evans

(Fig. 20, K)

Rhotidoides sidnica Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 47.

Length, ♂, 8 mm. Face of head reddish-brown mottled with black. Crown of head, visible only narrowly against the eyes. Pronotum and scutellum black, or brown, sparsely mottled with yellowish-brown. Pronotum declivous, the length slightly more than half the width. Tegmen pale or dark brown, coarsely mottled with hyaline grey, mostly in the form of oval areas; rows of evenly spaced yellow spots may lie along the costal margin. Male genitalia as in Fig. 20, K.

Type Location—Australian Museum.

Type Locality—Sydney, New South Wales.

Rhotidoides dongarrensis Evans

(Fig. 20, M1, M2)

Rhotidoides dongarrensis Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 152.

Length, ♂, ♀, 7 mm. Face of head, fronto-clypeus and vertex, pale yellow, or yellowish-white. Remainder, mottled with pale brown, dark brown or black. Crown of head slightly longer against the eyes than in the centre. Pronotum yellowish- or brownish-grey with brown markings. Scutellum pale brown. Tegmen hyaline colourless, evenly mottled with dull brown. Male genitalia as in Fig. 20, M1, M2.

Type Location—British Museum.

Type Locality—Dongarra, Western Australia.

Rhotidoides minor sp.nov.

Length, ♂, 4·2, ♀, 6 mm. Face of head, posteriorly black or dark brown, with, in the ♂, a broad, transverse, pale brown marginal stripe. Crown of head well-defined in ♂, of equal length with the eyes; in the ♀ somewhat longer in the centre than laterally.

Pronotum and tegmina, pale brown mottled with dark brown; scutellum evenly pale brown. Apex of abdomen in ♀ extending beyond folded tegmina. Male genitalia closely resembling those of *R. montana* (Fig. 20, J).

Holotype ♀ and *Allotype* ♂ from near Waldheim, Cradle Mt, Tasmania (coll. J.W.E. 2/64) in the Australian Museum. Additional specimens from Bowral, and Mt Kosciusko, New South Wales.

R. minor resembles *R. montana* in the structure of the various parts of the male genitalia and in the presence of a pale transverse band on the face of the head. It differs in having this band more posteriorly placed, in the greater development of the crown and in constant differences of size.

Thymbris Kirkaldy

Thymbris Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 49.

The face of the head is as wide, or wider, than long. The fronto-clypeus, which widens posteriorly, is flat as far as the antennal ledges, which are oblique and strongly developed. Posterior to the antennal ledges the face is rounded as far as the apically situated transverse ridge. The crown, which is of even length throughout, or slightly, or considerably, longer in the centre, is steeply declivous and the ocelli, which are on the crown, are visible from above. The pronotum is anteriorly declivous.

Type species—*Thymbris inachis* Kirkaldy.

Thymbris convivus (Stål) (comb.nov.)

(Figs. 19, C, 20, C)

Rhothidus convivus Stål, 1865, Öfvers.Vetensk.-Akad.Förh.Stockh. 22: 157.

Rhothidus breviceps Stål, 1865, Öfvers.Vetensk.-Akad.Förh.Stockh. 22: 157.

Rhotidus inachis Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 49.

Rhotidus aequalis Distant, 1907, Ann.Soc.Ent.Belg. 51: 193 (syn.nov.).

Length, ♂, 8, ♀, 11·5-14 mm. Face of head straw-coloured, sometimes sparsely mottled with brown; fronto-clypeus laterally depressed posterior to the antennal ledges. Crown slightly declivous, arrow-shaped, slightly longer in the centre than against the eyes, pale brown, finely or evenly mottled with brown or reddish-brown. Pronotum anteriorly declivous, together with scutellum, concolorous with the crown. Tegmen pale or dark hyaline-brown sparsely, or densely, mottled with brown; veins brown with pale bars. Several costal veinlets additional to Rla and Rlb may be present. Male genitalia as in Fig. 20, C.

Type Location—Natural History Museum, Vienna.

Type Locality—" Australia ".

Known distribution elsewhere—Adelaide (South Australia); Maryborough, Brisbane (Queensland); Crib Point, Melbourne (Victoria).

Thymbris melvillensis Evans

(Fig. 20, A)

Thymbris melvillensis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 59.

Length, ♂, 12 mm. Face of head anteriorly yellowish-brown with small dark brown markings; posteriorly with a transverse black band. Crown of head with one or two transverse black bands. Pronotum and scutellum pale yellowish-brown mottled with dark brown. Tegmen yellowish-hyaline with wide whitish-yellow veins margined with brown. Male genitalia as in Fig. 20, A.

Type Location—South Australian Museum.

Type Locality—Melville Island, North Australia.

Thymbris rieki sp.nov.

(Fig. 20, B)

Length, ♂, 9 mm. Face of head yellowish-brown mottled with light and very dark brown. Crown, steeply declivous laterally, longest in the centre where it is apically rounded, yellowish-brown mottled with nigger-brown. Pronotum and scutellum concolorous with the crown. Tegmen, hyaline grey, densely, and evenly, mottled with brown; veins brown with grey, or white, bars. Male genitalia as in Fig. 20, B.

Holotype ♂ from Moolooka, Queensland. (coll. E.F. Riek, 8/44) in the Australian Museum.

T. rieki differs from other species in the genus in the shape of the aedeagus.

Mitelloides Evans

Mitelloides Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 46.

This genus, which is closely related to *Thymbris*, seems to be restricted to New Guinea and the islands of Torres Strait. The face of the head is wider than long and is sharply separated from the vertical crown by a transverse ridge to which it is at right angles. Anterior to this ridge, the fronto-clypeus is concave for one-third of its length. The ocelli are on the crown in shallow depressions. The pronotum, which is steeply declivous anteriorly, is continuous with the crown.

Type species—*Mitelloides moaensis* Evans.

Mitelloides moanensis Evans

(Fig. 19, A1, A2)

Mitelloides moaensis Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 46.

Length, ♂, 9, ♀, 13 mm. Face of head pale yellowish-brown; internal margins of lora and fronto-clypeus posteriorly, dark brown. Crown of head yellowish-brown flecked with reddish-brown. Pronotum, anterior two-thirds brownish-yellow with dark brown markings, posteriorly grey. Scutellum yellowish-brown. Tegmen proximal costal and claval area, punctate, brown; remainder hyaline; veins brown sometimes barred with dark brown.

Type Location—Australian Museum.

Type Locality—Moa, Banks Island, Torres Strait.

Known distribution elsewhere—Mt Lamington (N.E. Papua).

Rhotidus Walker

Rhotidus Walker, 1862, J.Ent. 1: 318.

Rhothidus Stål, 1865, Öfvers.Vetensk.-Akad.Förh.Stockh. 22: 157.

This genus is closely related to *Thymbris*. It differs principally in having a produced arrow-shaped crown which is sharply separated from the face of the head and the ocelli are dorsal in position. All species are brown in colour. The fronto-clypeus, which is flat anteriorly, widens posteriorly where it is raised into a longitudinal ridge. The transverse ridge common to all Thymbrini is apical in position. The pronotum is declivous to a varying degree.

Type species—*Rhotidus cuneatus* Walker.

Rhotidus teleformis Walker

(Fig. 19, F1, F2)

Ledra teleformis Walker, 1851, List.Homopt.Brit.Mus. 3: 826.

Rhotidus teleformis (Walker) Distant, 1907, Ann.Soc.Ent.Belg. 51: 193.

Rhotidus cuneatus Walker, 1862, J.Ent. 3: 318 (syn.nov.).

Rhothidus navicula Stål, 1865, Öfvers.Vetensk.-Akad.Förh.Stockh. 22: 157.

Rhotidus stali Kirkaldy (nom.nov.) 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 26.

Rhotidus kirkaldyi Metcalf, (nom.nov.) 1955, J.Wash.Acad.Sci. 45: 265 (syn.nov.).

Rhothidus leucosticus Stål, 1865, Öfvers.Vetensk.-Akad.Förh.Stockh. 22: 157 (syn.nov.).

Rhotidus wilsoni Evans, 1937, Pap.Proc.R.Soc.Tasm. 1936: 62 (syn.nov.).

Rhotidus insularis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 62 (syn.nov.).

Rhotidus leurensis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 62 (syn.nov.).

Length, ♂, 11·8-13 mm; ♀, 12·5-16 mm. General coloration, various shades of brown, evenly mottled with pale brown. Face of head sharply separated from the crown for its whole width. Crown anteriorly and laterally declivous with an obscure median ridge. *Type Location*—British Museum.

Type Locality—Tasmania.

Known distribution elsewhere—Lamington National Park (Queensland); Leura (New South Wales); Launceston (Tasmania); Eltham, Belgrave, Bendigo (Victoria).

Rhotidus kiatensis Evans

Rhotidus kiatensis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 63.

Length, ♂, 12 mm. General coloration dark brown, or blackish, mottled with yellow. Crown of head, black mottled with apricot yellow, separated from the face medially by a thickened ridge; laterally, against the eyes, crown continuous with the face as far as the prominent antennal ledges; median longitudinal ridge lacking on crown, which is steeply declivous anteriorly and laterally. Pronotum steeply declivous, black mottled with yellow. Tegmen dark hyaline-brown mottled with grey or white.

Type Location—Australian Museum.

Type Locality—Kiata, Victoria.

Rhotidus navicula (Walker)

Ledra navicula Walker, 1851, List Homopt.Brit.Mus. 3: 826.

Rhotidus navicula (Walker), Distant, 1907, Ann.Soc.Ent.Belg. 51: 193.

Length, ♀, 15 mm. This species might well be regarded as a synonym of *R. teleformis*, which it closely resembles. The name is, for the time being retained since the median ridge on the crown of the head is more strongly developed than in those representatives of *R. teleformis* which have been examined.

Type Location—British Museum.

Type Locality—New South Wales.

Hackeriana Evans

Hackeriana Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 67.

This genus comprises insects which superficially resemble those in the genus *Rhotidus*, since the head is broadly arrow-shaped. They differ in being green, instead of brown in colour, and in having the ocelli marginal in position and situated immediately posterior to a marginal rim.

The face of the head is approximately as wide as long and the labium terminates between the middle coxae. The ante-clypeus and lora are re-curved anteriorly and the antennal ledges, which are indistinct, are arched. The apex of the head is broadly arrow-shaped and the ocelli lie close to the posterior margin of the marginal rim and though not adjacent to the eyes are closer to them than to the centre of the head. The crown of the head is longer in the centre than against the eyes. In the female, the ovipositor extends beyond the folded tegmina. In the male genitalia, which furnish almost the sole characters for species separation, the sub-genital plates are broad and parallel-sided, the parameres short and spanner-shaped and the pygophores have strong, narrow processes.

Type species—*Hackeriana huonensis* Evans.

This genus is the sole one in the Thymbrini to comprise species which are green in colour. It superficially resembles *Neotartessus* gen.nov. an aberrant, as to colour, genus of the Tartessinae.

Hackeriana huonensis Evans

(Figs. 19, J1, J2; 20, E1, E2)

Hackeriana huonensis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 68.

Length, ♂, 7 mm. General coloration yellowish-green. Apical margin of head with a transverse white stripe which separates the crown from the face. Crown flat; ocelli slightly nearer to the eyes than to the apex of the head, which is rounded, not acute. Tegmen hyaline, costal margin anteriorly green; veins pale green. Male genitalia as in Fig. 20, E1, E2.

Type Location—Australian Museum.

Type Locality—Huonville, Tasmania.

Hackeriana glauca Evans

(Fig. 20, D1, D2)

Hackeriana glauca Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 68.

Length, ♂, 7·5 mm. General coloration, pale greenish-yellow. Anterior apex of head with a white stripe, narrowly margined with brown. Crown with a shallow median longitudinal depression; ocelli nearer to the eyes on each side than to the apex of the head. Tegmen pale yellowish-hyaline; veins pale green. Male genitalia as in Fig. 20, D1, D2.

Type Location—Australian Museum.

Type Locality—Huonville, Tasmania.

Hackeriana cuspidata (Walker) (comb.nov.)

Ledra cuspidata Walker, 1851, List, Homopt.Brit.Mus. 3: 830.

Rhotidus cuspidatus (Walker) Distant, 1907, Ann.Soc.Ent.Belg. 51: 193.

Hackeriana rotundata Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 68 (syn.nov.).

Length, ♀, 8·2 mm. General coloration pale greenish-yellow. Head less flattened, more apically swollen and more elongate than in the preceding species. Apically, a white stripe bordered with brown; ocelli much closer to the eyes on each side than to the apex of the head. Pronotum more convex than in the preceding species. Tegmen hyaline, veins green.

Type Location—British Museum.

Type Locality—New Holland.

Known distribution elsewhere—Kangaroo Island (South Australia).

Hackeriana translucens Evans

(Fig. 20, F)

Hackeriana translucens Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 152.

Length, ♂, 7 mm. General coloration, greenish-yellow. Ocelli closer to the narrow apex of the head than to the eyes on each side. Crown pale greenish-yellow with faint oval white markings; medially flat, laterally declivous. Pronotum and scutellum concolorous with the crown. Tegmen, colourless-hyaline; veins green. Male genitalia as in Fig. 20, F.

Type Location—British Museum.

Type Locality—Burracoppin, Western Australia.

Known distribution elsewhere—Eltham district (Victoria).

Novothymbris Evans

Novothymbris Evans, 1941, Trans.Roy.Soc.N.Z. 71: 162.

Because of the dorsal position of their ocelli, on the crown of the head, the insects comprised in this genus were originally ascribed by Myers (1923) to the genus *Diedrocephala* Spinola. This is a genus of Nearctic leafhoppers belonging to the Cicadellini.

Although *Novothymbris* spp. are not closely related to species in any of the genera of the Thymbrini occurring in Australia they would seem, nevertheless, to have been derived from an early thymbrid stock. It is possible that their forerunners reached New Zealand by adventitious means, during early Tertiary times. This suggestion is made because some species in the genus retain cephalic characteristics of a more generalised nature than are to be found in any present-day Australian representatives of the tribe.

The face of the head is wider than long and may be approximately flat, or evenly convex. In insects with flattened heads, the post-clypeus may be separated from the frontal region by an incomplete epistomal suture. In those with convex heads, the cibarial muscles extend posteriorly onto the frons. Other generalised features retained in the heads of some *Novothymbris* spp. with a flattened facial region, are traces of former maxillary sutures in the form of transverse ridges at the base of each maxillary plate; also the association of the base of each lorum with the corresponding anterior tentorial pit (Fig. 19, P1).

The tegmina may be fully developed, or reduced, and when in the latter condition, may be apically rounded and elytra-like. The hind tibiae have, as well as hair-like spines, 2 rows of strong spines, of which those in 1 row are mounted on enlarged bases.

Type species—*Diedrocephala zealandica* Myers.

The shape of the various parts of the male genitalia of all specimens examined has been found to be remarkably constant. For this reason, and also because of the apparent wide range of variability in coloration, overall size and proportions of the various forms available for study, species recognition has been found difficult. A critical study is needed to determine whether those insects already described merit specific status and also whether others require description.

Brief descriptive notes follow in respect to the several described species. Of these only the two first can, with any confidence, be recognized as truly distinctive.

Novothymbris zealandica (Myers)

(Fig. 19, P1, P2)

Diedrocephala zealandica Myers, 1923, Trans.N.Z.Inst. 54: 409.

Length, ♂, 6 mm. General coloration brownish speckled with fuscous and white. Face of head flattened; post-clypeus separate from the frons. Crown of head usually only slightly produced, about 4 times as wide as long.

Type Location—British Museum.

Type Locality—Dun Mountain, Nelson, New Zealand, 2,000 ft.

Novothymbris cassiniae (Myers)

(Fig. 19, Q)

Diedrocephala cassiniae Myers, 1923, Trans.N.Z. Inst. 54: 408.

Length, ♂, 4 mm. A short squat species, pale olivaceous brown with whitish streaks and spots. Face of head convex; frontal region not separately differentiated. Crown of head more than twice as long as medially wide.

Type Location—British Museum.

Type Locality—Wellington, New Zealand.

Collected on—Cassinia leptophylla and *Olearia solandri.*

Novothymbris dunensis (Myers)

Diedrocephala dunensis Myers, 1923, Trans.N.Z.Inst. 54: 411.

Length, ♀, 5 mm; a small species distinguished by its pale greenish colour; obsoletely flecked with fuscous and with dark eyes. Crown of head twice as wide as medially long.

Type Location—British Museum.

Type Locality—Dun Mountain, Nelson, New Zealand, 3,000 ft.

Novothymbris hinemoa (Myers)

Diedrocephala hinemoa Myers, 1923, Trans.N.Z.Inst. 54: 412.

Length, ♂, 5-5·5 mm. A short and squat species with small tegmina. Tegmen with 2 white areas separated by a transverse dark patch. Crown of head considerably more than twice as broad as medially long.

Type Location—British Museum.

Type Locality—Nelson, New Zealand.

Novothymbris hudsonica (Myers)

Diedrocephala hudsonica Myers, 1923, Trans.N.Z.Inst. 54: 414.

Length, ♀, 6·4 mm. A rather large species with pointed vertex and pale tegmina with a broad chocolate band along the outer border of the clavus. Crown of head less than twice as broad as medially long, irregularly and coarsely corrugated and punctured.

Type Location—British Museum.

Type Locality—Karori, Wellington, New Zealand.

Novothymbris tararuia (Myers)

Diedrocephala tararuia Myers, 1923, Trans.N.Z. Inst. 54: 410.

Length, ♀, 5·5-6 mm. General coloration testaceous or dark greyish-olivaccous; 2 oblique bands on corium, one tipping the tegmen distally. Crown of head considerably less than twice as wide as medially long, strongly punctate with large shallow punctures.

Type Location—British Museum.

Type Locality—Tararua Range, 3,300 ft, Wellington Province, New Zealand.

Novothymbris maorica (Myers)

Diedrocephala maorica Myers, 1923, Trans.N.Z. Inst. 54: 409.

Length, ♂, 5·4 mm. In appearance uniform yellowish-testaceous. Crown of head about twice as broad as medially long, coarsely but sparsely punctate.

Type Location—British Museum.

Type Locality—Wainaiomata, New Zealand.

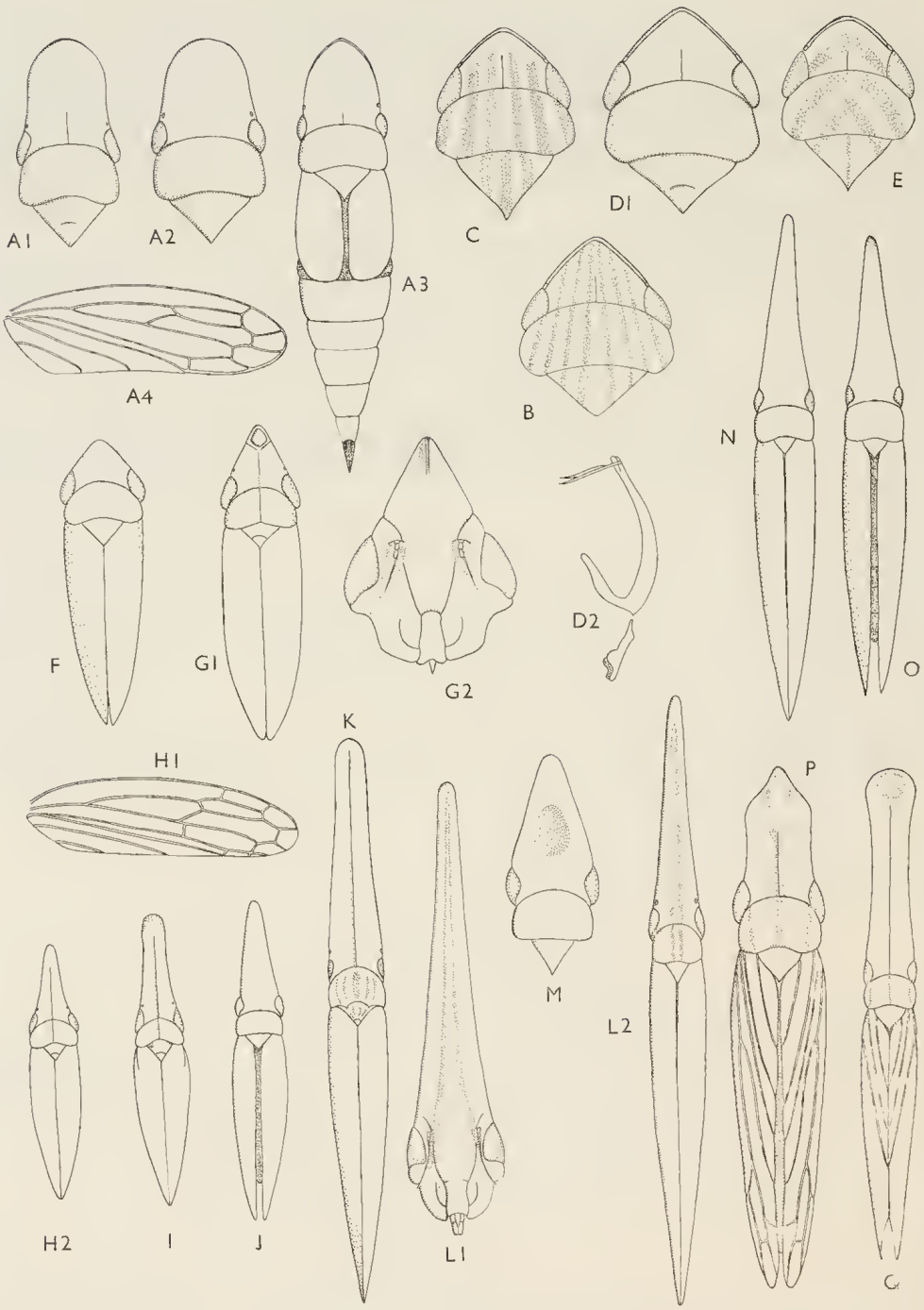


Fig. 21 : A1, 2, *Hecalus pallescens*, head and thorax; A3, *H. fallescens*, brachypterous form; A4, *H. pallescens*, tegmen; B, *Hecalocratus pallidus*; C, *Linnavuoriella porrecta*; D1, *Linnavuoriella australis*; D2, *L. australis*, aedeagus and basal plate; E, *Linnavuoriella arcuata*; F, *Paradorydium viridis*; G1, *Paradorydium brighami*; G2, *P. brighami*, face of head; H1, *Paradorydirum ovidii*, tegmen; H2, *P, ovidii*; I, *Paradorydium pseudolyricen* J, *Paradorydium insularis*; K, *Paradorydium menalaus*; L1, *Paradorydium westwoodie*, face of head; L2, *P. westwoodie*; M, *Paradorydium gourlayi*; N, *Paradorydium stewartensis*; O, *Paradosydium philpotti*; P, *Mapochiella woodwardi*; Q, *Mapochiella rotundata*

Hecalinae

The sub-family is represented in Australia by 2 tribes, the Hecalini and the Paradorydiini both of which are widely distributed in other parts of the world. The Australian representatives lack distinctive features and while some may be of adventitious Tertiary origin, others are probably of recent introduction.

Although insects comprised in the Hecalini, and in the Paradorydiini, differ considerably from each other in general appearance, they nevertheless share several characteristics not found in combination in other groups (Evans, 1947a).

Hecalini

The most typical representatives of this tribe may be recognised by their spatulate heads, which superficially resemble those of ledrids, but differ in having marginal, instead of dorsally placed, ocelli. Another characteristic is the shape of the pronotum, which is approximately rectangular. It is probable that all species are grass-feeders and this food relationship may provide an explanation for the wide distribution of the tribe. Many are polymorphic in respect to wing development, and sexual dimorphism also occurs.

Hecalus Stål

Hecalus Stål, 1864, Ann.Soc.Ent.Fr. (4) 4: 65.

It is uncertain whether the single leafhopper occurring in Australia which is ascribed to this genus is really congeneric with the type species. Accordingly no generic description is given. Instead, certain characters which normally would form part of a generic description are included in the specific description.

Type species—*Hecalus paykulli* Stål (West Africa).

Hecalus pallescens Stål

(Fig. 21, A, 1-4)

Hecalus pallescens Stål, 1864, Ann.Soc.Ent.Fr. (4) 4: 65.

Hecalus pallescens Stål, Signoret, 1879, Ann.Soc.Ent.Fr. (9) 5: 270.

Hecalus immaculatus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 338 (syn.nov.).

Hecalus basedowi Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 11 (syn.nov.).

Hecalus elongatus Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 11 (syn.nov.).

Length, ♂, 6-6·5 mm, of head, ·8 mm; ♀, 8-10 mm, of head 1·5-2 mm. General coloration pale green. Face of head of ♂ convex, of ♀ convex, except for the posterior marginal rim. Anterior apex of head of ♂ broad, yellow, margined on each side with a narrow brown stripe; of ♀, narrow, green. Crown of head, of ♂, convex in the centre, slightly longer than the pronotum; of ♀, more than twice the length of the pronotum, convex with a flattened marginal rim or flat with an upturned marginal rim. Shape of crown in ♀ highly variable. Pronotum rectangular. Tegmen pale hyaline green; veins green. The tegmina may be fully developed, sub-brachypterous, or brachypterous.

Type Location—Natural History Museum, Stockholm.

Type Locality—"Austral boreal".

Known distribution elsewhere—Wyndham, Derby (Western Australia); Cairns, Burnside, Gregory Downs (Queensland).

Collected on—Grasses.

Linnavuori's (1961) establishment of the synonymy of *Parabolocratus* Fieber, type species *P. glaucescens*, Fieber with *Hecalus* Stål, type species *H. paykulli* (Stål) leaves certain species, formerly attributed to the genus *Parabolocratus*, lacking a generic designation. As pointed out by Linnavuori, some of these species are referable to the genus *Glossocratus* Fieber, but others, including the 3 species which follow, are not, and a new genus is accordingly described below to contain them.

Linnavuoriella gen.nov.

The crown of the head is flat and elliptically produced and the anterior margin forms a narrow parallel-sided band. The ocelli are immediately adjacent to the eyes. The pronotum is laterally wide. The tegmina are long and narrow and overlap apically and have well developed appendices. The hind tibiae are flattened and have 3 rows of long spines with several minute spines between each of the strongest spines.

Type species—*Parabolocratus arcuatus* Motschulsky.

Linavuoriella differs from *Hecalus* and *Glossocratus* in not having a spatulate head and from *Hecalocratus* in having a more pronounced anterior marginal rim.

Linnavuoriella arcuata (Motschulsky) (comb.nov.)

(Fig. 21, E)

Acocephalus arcuatus Motschulsky, 1859, Etud.Ent. 8: 115.

Parabolocratus citrinus Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 36 (syn.nov.).

Parabolocratus arcuatus (Motschulsky), Capco, 1960, Philipp.J.Sci. 88: 330.

Length, ♂, 5·8 mm, of crown, ·7 mm; ♀, length, 6 mm. General coloration pale green with orange markings. Apex of head with a narrow brown marginal stripe. Crown with a single, and pronotum with a double, inverted V-shaped orange marking. Tegmen pale hyaline green with some of the veins orange; the others broadly green; apex of tegmen smoky.

Type Location—Moscow.

Type Locality—Ceylon.

Known distribution elsewhere—Cairns, Sunnybank, Brisbane (Queensland); Oriental Region generally.

Collected on—Grasses.

Linnavuoriella porrecta (Walker) (comb.nov.)

(Fig. 21, C)

Tocephalus porrectus Walker, 1858, List.Homopt.Brit.Mus.Supplement 262.

homsoniella porrecta (Walker), Distant, 1908, Faun.Brit.Ind.Rhyn. 4: 278.

Parabolocratus porrectus (Walker), Distant, 1918, Faun.Brit.Ind.Rhyn. 7: 31.

Parabolocratus porrectus (Walker), Capco, 1960 Philipp.J.Sci. 88: 327.

Length, ♂, 5-5·2 mm; ♀, 6-6·2 mm. General coloration pale green with orange markings. Female with 4 longitudinal orange markings which extend from near the anterior margin of the crown to the hind margin of the pronotum.

Type Location—British Museum.

Type Locality—Ceylon.

Known distribution elsewhere—Innisfail, Maryborough (Queensland); India, New Guinea.

Linnavuoriella australis (Evans) (comb.nov.)

(Fig. 21, D1, D2)

Parabolocratus australis Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 36.

Length, ♂, 6 mm. General coloration, pale yellowish-green. A narrow transverse white band on anterior apex of head bordered on each side by a narrow brown line. Male genitalia as in Fig. 21, D2.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Gregory Downs, North Queensland.

Known distribution elsewhere—Kimberley (Western Australia).

Hecalocratus gen.nov.

The face of the head is approximately as long as wide. The labium is short and terminates between the fore coxae. The ante-clypeus is parallel-sided and the fronto-clypeus convex. The maxillary plates are externally sinuate. The antennal depressions are shallow and antennal ledges lacking. The apex of the head consists of a narrow vertical band bearing the ocelli, which are immediately adjacent to the eyes and visible from above. The crown of the head, which is approximately equal in length to the pronotum, slopes anteriorly and laterally and the anterior margin is rounded, not acute. The pronotum is laterally wide. The tegmina have wide appendices and the hind tibiae, which bear long spines, are flattened.

Type species—*Hecalocratus pallidus* sp.nov.

Hecalocratus differs from *Hecalus*, *Glossocratus* and *Linnavuoriella* in the shape of the crown of the head and of the pronotum.

Hecalocratus pallidus sp.nov.

(Fig. 21, B)

Length, ♂, 6·2, ♀, 7·5 mm. General coloration very pale brownish-yellow. Crown and pronotum stippled with brown, the brown dots, in part, arranged to form indistinct longitudinal stripes, of which there are six on the crown and ten on the pronotum. Scutellum with brown muscle impressions laterally. Tegmen pale hyaline brownish-yellow; veins pale brown, in part stippled with brown.

Holotype, ♀, and *Allotype* ♂, from Cairo Station, Queensland, (coll. C. McC., 1/51), in the National Museum of Victoria.

This genus, and the type species, have been described with diffidenee as there is a possibility that the latter is an introduced insect and may already have been described from another part of the world.

Reuteriella Signoret

Reuteria Signoret, 1880, Ann.Soc.Ent.Fr. (5) 10: 45.

Reuteriella Signoret, 1880, Ann.Soc.Ent.Fr. (5) 10: 365 (nom.nov.).

This genus and the geographical origin of the type species present certain puzzling features. Signoret's descriptions of both the genus and the species are detailed and are accompanied by excellent illustrations. Although, in the generie description, he stated that the genus was close to *Glossocratus* Fieber, (a genus comprised in the Hecalini), nevertheless, formerly I have identificd insects which are clearly related to *Batracomorphus* Lewis as belonging to *Reuteriella* (Evans, 1938). This was done partly because of the resemblanee in head-shape of the insects in question to the illustration given by Signoret and partly because, although living in Tasmania at the time, I had never collected a *Hecalus* in the island (and the locality of the type spccies is given as Tasmania).

Subsequent examination of the type specimen has disclosed that it is, in fact, a reprcscntative of the Hecalini and not of the Jassinae. Nevertheless, in all the abundant material from Tasmania available to me for study, there has never been a single specimen belonging to the Hecalini, and such representatives of this group as I have seen from Australia have all come from the more tropical, northern, parts of the continent. Accordingly, it is assumed that the locality given by Signoret was probably an incorrect one.

Reuteriella flavescens (Signoret)

Reuteria flavescens Signoret, 1880, Ann.Soc.Ent.Fr. 5 (10): 46.

Type Location—National History Museum, Vienna.

Type Locality—(?) Tasmania.

Paradorydiini

These are small, narrow insects, which are either grcen or pale brown in colour. Some superficially resemble the seed-like Cephalelini and like them have a pitted appearance. Moreover, it would seem that some species of the Paradorydiini, like some Cephalelini, frequent a moist environment wherc they feed on rushcs.

Paradorydium Kirkaldy

Dorydium Burmeister, 1839, Gen.Ins.Rhynch. 3: 1938, 39.

Paradorydium Kirkaldy, 1901, Entomologist, 34: 339 (nom.nov.).

Deltodorydium Kirkaldy, 1907, Bull.Hawaii. Sug.Ass.Exp.Sta. 3: 75 (syn.nov.).

Deltodorydium Kirkaldy, Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 45.

On the face of the head the labium is short and terminates between the fore eoxae; the ante-clypeus is parallel-sided and sometimes medially marginate anteriorly and apically upturned, and the lora are small. The maxillary plates are wide and the genae extend widely in front of the eyes. The antennal ledges are obscure. Posterior to the eyes the face of the head narrows and may be either arrow-shaped or narrowly produced and centrally

arinate. The frontal sutures diverge laterally and are parallel with the hind margin of ıe eyes. The ocelli are marginal and lie close to the apices of the frontal sutures. The own of the head is triangular, or narrowly anteriorly produced to a varying extent. The onotum narrows laterally and is somctimes carinate. The tegmina, which like the head ıd thorax, arc punctate, are narrow apically. The hind tibiae have 3 rows of strong spines, row of which is mounted on enlarged bases, and a row of small spines.

ype species—*Dorydium lanceolatum* Burmeister (Sicily).

Paradorydium ovidii Kirkaldy

(Fig. 21, H1, H2)

aradorydium ovidii Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 73.
Length, ♀, 5 mm.

ype Location—H.S.P.A., Honolulu.

ype Locality—Mittagong, New South Wales.

nown distribution elsewhere—Lake St Clair (Tasmania); Mt Feathertop (Victoria).

Paradorydium menalaus Kirkaldy

(Fig. 21, K)

radorydium menalaus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 339.
Length, ♂, 10·5, ♀, 12 mm.

ype Location—H.S.P.A. Honolulu.

ype Locality—Cairns, Queensland.

nown distribution elsewhere—Croydon (Victoria).

llected on—Grasses.

Paradorydium pseudolyricen Kirkaldy

(Fig. 21, I)

radorydium pseudolyricen Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp Sta. 1 (9) : 340

radorydium casuarinae Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 47 (syn.nov.).
Length, ♂, 5·7, ♀, 6·5-8·2 mm.

ype Location—H.S.P.A., Honolulu.

ype Locality—Brisbane, Queensland.

nown distribution elsewhere—Canberra (A.C.T.).

llected on—Casuarina.

Paradorydium cooki (Evans) (comb.nov.)

Deltodorydium cooki Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 46.

Length, ♂, 3 mm. General coloration, pale brown.

Type Location—Australian Museum.

Type Locality—Adelaide, South Australia.

Collected on—an introduced weed, *Echium plantagineum*.

Paradorydium brighami Kirkaldy

(Fig. 21, G1, G2)

Paradorydium brighami Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 72.

Deltodorydium brighami (Kirkaldy) Evans, Pap.Roy.Soc.Tasm. 1936: 47.

Deltodorydium leai Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 46 (syn.nov.).

Length, ♂, 3·5 mm. General coloration pale yellowish-brown. Crown of head nearly twice as long as pronotum. Face of head with a median longitudinal carina posteriorly; a less prominent longitudinal ridge on the crown which continues onto the pronotum.

Type Location—H.S.P.A., Honolulu.

Type Locality—Mittagong, New South Wales.

Paradorydium viridis (Evans) (comb.nov.)

(Fig. 21, F)

Deltodorydium viridis Evans, 1937, Pap.Roy.Soc.Tas. 1936: 46.

Length, ♂, 3-3·5 mm. General coloration, green. Head shorter than that of *P. brighami* and lacking a median carina on the face.

Type Location—Australian Museum.

Type Locality—Cannington, Western Australia.

Collected on—*Melaleuca*.

Paradorydium westwoodi (F.B. White)

(Fig. 21, L1, L2)

Dorydium westwoodi F.B. White, 1879, Ent.Mon.Mag. 15: 215.

Paradorydium westwoodi (F.B. White), Myers, 1923, Trans.N.Z.Inst. 54: 416.

Length, ♂, 11-12 mm; ♀, 14 mm.

Type Location—British Museum.

Type Locality—Christchurch, New Zealand.

Collected on—Rushes.

Paradorydium philpotti Myers

(Fig. 21, O)

Paradorydium philpotti Myers, 1923, Trans.N.Z.Inst. 54: 417.

Length, ♂, 8-8·8 mm, head, 3 mm, ♀, 11 mm, head 4 mm.

Type Location—British Museum.

Type Locality—Hump Range, 3,000 ft, South Island, New Zealand.

Known distribution elsewhere—Stewart Island, New Zealand.

Paradorydium stewartensis sp.nov.

(Fig. 21, N)

Length, ♂, 9 mm, of head 3·5 mm; ♀, 10·6 mm, of head, 4 mm. General coloration pale or dark brown. Head and thorax evenly brown. Tegmen dull brown; veins pale brown or yellow.

Holotype ♂, and *Allotype* ♀ from Point Pegasus, Stewart Island, New Zealand (coll. R.K. Dell and B.A. Holloway, 11/53) in the Dominion Museum.

P. stewartensis differs from *P. philpotti* in its generally darker coloration and in having a considerably narrower and more elongate head.

Paradorydium insularis sp.nov.

(Fig. 21, J)

Length, ♂, 6·2 mm, of head 2·1 mm. General coloration straw, finely mottled with brown. Face of head antero-medially and laterally, pale brownish-yellow; remainder mottled brown. Crown of head, pronotum and scutellum, with an indistinct longitudinal brown stripe, yellowish in the centre. Tegmen straw-colour streaked with brown.

Holotype ♂, from South-west Stewart Island, New Zealand. (coll. R.K. Dell and B.A. Holloway 11/53) in the Dominion Museum.

P. insularis differs from *P. philpotti* in its smaller size and differently shaped head.

Paradorydium gourlayi sp.nov.

(Fig. 21, M)

Length, ♂, 5·8 mm, of head, 1·6 mm. General coloration pale brown. Crown of head with a basin-like median depression; apical half inclined upwards. Tegmen with obscure brown and whitish stripes.

Holotype ♂ from Tahuna, South Island, New Zealand. (coll. 2/29, E.S. Gourlay) in the collection of the D.S.I.R., Nelson, New Zealand.

P. gourlayi differs from other species of *Paradorydium* in the shape of its head.

Mapochiella gen.nov.

The sides of the crown of the head are parallel with each other for at least the basal two-thirds. On the face of the head there is a sharply defined median carina and a prominent median longitudinal ridge on the crown. The veins of the tegmen are raised in relief and the cross-vein, Rs, which links R with M, is present.

Type species—*Mapochiella rotundata* sp.nov.

Mapochiella resembles *Mapochia* Distant and differs from *Paradorydium* in having a wide parallel-sided crown. It differs from *Mapochia* in having well-defined dorsal and ventral carinae on the head.

Mapochiella rotundata sp.nov.

(Fig. 21, Q)

Length, ♂, 9 mm, of head, 4 mm. General coloration brown; costal margin of tegmen yellowish. Head nearly as long as the rest of the body, parallel-sided, except at the apex, where it is circular in outline with a dorsal basin-like depression and is curved upwards. Pronotum with a median ridge and a pair of lateral ridges in alignment with the eyes. Tegmen long and narrow.

Holotype ♂ from Deception Bay, Queensland, in the Australian Museum.

Mapochiella woodwardi sp.nov.

(Fig. 21, P)

Length, ♂, 5·2 mm, of head, 1·5 mm. General coloration straw colour. Face of head with a post-apical basin-like depression on each side of the median keel. Crown of head, straw colour mottled with brown with a pre-apical long, narrow, depression at the apex of the median ridge and with lateral depressions on each side of the head. Pronotum straw colour, with a median, and post-ocular, lateral ridges. Tegmen straw colour.

Holotype ♀, from Carnarvon Gorge, South Queensland (coll. T.E. Woodward, 5/54) in the Queensland Museum.

Aphrodinae

The Aphrodinae comprise a group of leafhoppers of which the principal distinguishing characteristics are the extension of the fronto-clypeus narrowly onto the crown of the head and the dorsal position of the ocelli. The face of the head is usually emarginate beneath the eyes and there is a tendency towards brachyptery. Two tribes only have representation in Australia and one of these occurs also in New Zealand.

Characters separating the Tribes of the Aphrodinae occurring in Australia and New Zealand

Anterior margin of face broadly emarginate in front of the eyes (Fig. 22, B)....
..... **Aphrodini** (Australia only)

Anterior margin of face narrowly emarginate in front of the eyes (Fig. 22, E)....
..... **Eucanthellini** (Australia and New Zealand)

Aphrodini

The tribe has representatives in all the principal geographical regions. In Australia, it would seem, though occurring as far south as Tasmania, to form part of the late Indo-Malayan element of the Australian fauna.

Kosmiopelix Kirkaldy

Kosmiopelix Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 334.

The face of the head is approximately triangular in shape and the labium extends to between the apices of the fore coxae. The crown is flattish and longer than wide and the ocelli, which are on the crown, are slightly nearer the sides of the head than the centre. The pronotum is slightly arched anteriorly and obtuse-angularly emarginate posteriorly.

Type species—*Kosmiopelix varicolor* Kirkaldy.

This genus is seemingly closely related to *Chiasmus* Mulsant and Rey.

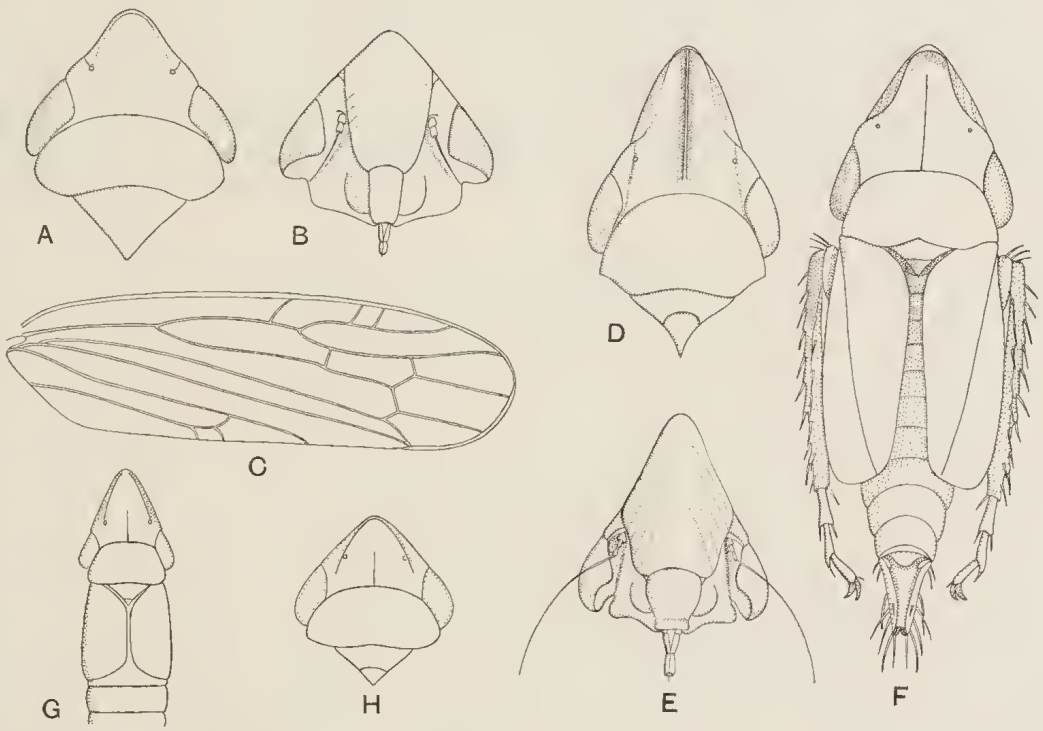


Fig. 22: A, *Kosmiopelix varicolor*, head and thorax; B, *K. varicolor*, face of head; C, *Euacanthella brunnea* tegmen; D, *E. brunnea*, brachypterous form; E, *E. brunnea*, fully winged form, face of head; F, *E. brunnea*. brachypterous form; G, *E. palustris*, brachypterous form, head and thorax; H, *E. palustris*, fully winged form, head and thorax.

Kosmiopelix varicolor Kirkaldy

(Fig. 22, A, B)

Kosmiopelix varicolor Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 335.

Kosmiopelix rieki Evans, 1947, Trans.Roy.Ent.Soc.London 98: 253 (syn.nov.).

Length, ♂, ♀, 3-5 mm. General coloration pale or dark brown or black. Face of head with a median and posterior lateral depressions, pale brown with brown punctures; antennal depressions dark brown. Crown pale brownish-yellow with evenly distributed brown punctures. Thorax pale brownish-yellow with brown punctures posteriorly. Tegmen, brachypterous, reduced to half the normal length, whitish with brown punctures (hind

margin sometimes broadly white), or fully developed and vitreous. Dorsal surface of abdomen whitish mottled with brown; hind margin of every segment brown with a median longitudinal brown streak.

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Known distribution elsewhere—Risdon (Tasmania); Avalon (New South Wales).

Collected on—Grass.

Euacanthellini (Tribe nov.)

At the time the genus *Eucanthella* was described it was stated that it had characteristics in common with the Tettigellinae (Cicadellinae) and Euscelinae (Deltocephalinae) but it was placed in the sub-family Eucanthinae because of assumed closer relationships with *Euacanthus* Burmeister. Later (Evans, 1947a) it was transferred to the Aphrodini, Aphrodinae. While it is retained in the last named sub-family, its very distinctive characteristics merit the segregation of the genus in a separate tribe and this is accordingly done.

Originally 3 species were placed in this genus but further study suggests that only one Australian species occurs, the differences formerly used for purposes of species separation being due to no more than sexual dimorphism and the occurrence of brachypterous forms. It is interesting to note that brachyptery is a frequent development also in insects comprised in the Aphrodini.

Euacanthella Evans

Euacanthella Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 8.

The head, which is arrow-shaped, is longer and narrower in the female than in the male. On the face of the head the lora, which are small, do not extend as far as the anterior margins of the maxillary plates. The ante-clypeus is considerably wider posteriorly than anteriorly and the post-clypeus, which is convex, extends to the hind margin of the face. The anterior margin of the face is deeply emarginate at the anterior apices of the channel-like antennal depressions and the antennal ledges are distinct and oblique. The post-clypeus extends narrowly, laterally, onto the crown of the head and the frontal region, which may be posteriorly differentiated by a transverse epicranial suture, is entirely dorsally situated. The ocelli which are on the crown are considerably nearer the sides of the head than to each other. The pronotum, which is flat, except in fully-winged females, when it is slightly declivous, is narrower than the head, including the eyes, and the proplcurae narrowly separate the eyes from the bases of the tegmina. The tegmina and wings may be fully developed, or very greatly reduced, extending only as far as the second abdominal segment. Vein M 1 + 2 is invariably absent and the venation of the clavus, particularly in females, may be reticulate. The tegmina of fully winged females do not extend as far as the apex of the abdomen. The tibiae and tarsi of all 3 pairs of legs are heavily spined as is also the ninth abdominal tergite in the female.

Type species—*Euacanthella palustris*—Evans.

The two species ascribed to this genus are of particular interest on account of their polymorphism, unusual structural features and restricted distribution. They frequent a marsh environment in south-eastern Australia and in New Zealand and are the sole representatives of the Aphrodinae to have an exclusively southern distribution.

Euacanthella palustris Evans

(Fig. 22, G, H)

Euacanthella palustris Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 8.

Euacanthella bicolor Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 9 (syn.nov.).

Euacanthella insularis Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 9 (syn.nov.).

Length, alate ♂, 4·5 mm, brachypterous ♂, 8 mm; alate ♀, 6·2-8 mm. Face of head pale yellow with an irregular pale brown pattern, or black, or brown, mottled with yellowish. Crown of head and pronotum concolorous with the face. Tegmen, when fully developed, pale hyaline-brown or dark brown. Thorax, abdomen and legs, in brachypterous forms, dark brown mottled with pale brown, or, pale yellow and pale brown; in winged forms, ventrally, whitish mottled with grey.

Type Location—Australian Museum.

Type Locality—Snug, Tasmania.

Known distribution elsewhere—Hobart, Cradle Mt (Tasmania); Mt Kosciusko, Berrima (New South Wales).

Euacanthella brunnea sp.nov.

(Fig. 22, C, D, E, F)

Length, ♂, 5; ♀, 8 mm. Winged form; face of head yellow, mottled with brown, becoming progressively darker up to between the antennal ledges; marginal band, broadly yellow. Crown of head, considerably longer than wide. Crown and pronotum and scutellum, yellowish, with a reticulate brown pattern. Tegmen mottled hyaline, dull brown; veins greyish, costal border pale. Abdomen extending considerably beyond the fully developed tegmina. Brachypterous form evenly pale parchment colour without any pattern development. Crown of head slightly wider than long.

Holotype, ♀, from Portland Road, Auckland, North Island, New Zealand (K.D. Hill, 20/3/56) in the Auckland Museum. Two Paratype ♀ ♀, Auckland (E.S. Gourlay, 10/2/41), (D.S.I.R., Nelson, New Zealand).

E. brunnea resembles *E. palustris* in general coloration and appearance but differs in the shape of the lateral emarginations adjacent to the eyes.

Cicadellinae

Cicadellini

This is one of the dominant present-day groups of leafhoppers. It is particularly richly represented in the western hemisphere and in the Oriental region, including New Guinea. In Australia there are a few species which form part of the late Indo-Malayan fauna and occur in Queensland and northern, coastal, New South Wales, an introduced tropical, or sub-tropical, species and several endemic species which have a wide distribution over the continent.

Leafhoppers in this sub-family are usually cylindrical in shape. The face of the head is convex, the labium short, the ante-clypeus wide and swollen, and the maxillary plates narrow, or of moderate width. The post-clypeus, which is considerably swollen, extends

laterally on to the crown. The ocelli are situated on the crown. The antennal ledges, which are situated at the hind margin of the face, are strong and rounded but not prominent. They are visible from above as projecting ledges.

The 3 genera represented in Australia may be separated as follows:—

1. Slender insects, 5 mm or less in length; orange and black in colour..... ..... **Kolella** gen.nov.
   Broad insects, more than 5 mm in length 2
2. Head and thorax with yellow and black markings; tegmina dark metallic blue.. ..... **Kolla** Distant
   Not as above ..... **Cicadella** Latreille

Cicadella Latreille

Cicadella Latreille, 1817, Le Règne Animal 3: 406.

Tettigella China and Fennah, 1945, Ann.Mag.Nat.Hist. 12: 711.

Cicadella Latreille, China, 1961, Bull.Zool.Nomencl. 18 (3): 163.

Type species—*Cicadella viridis* Linnaeus (Europe).

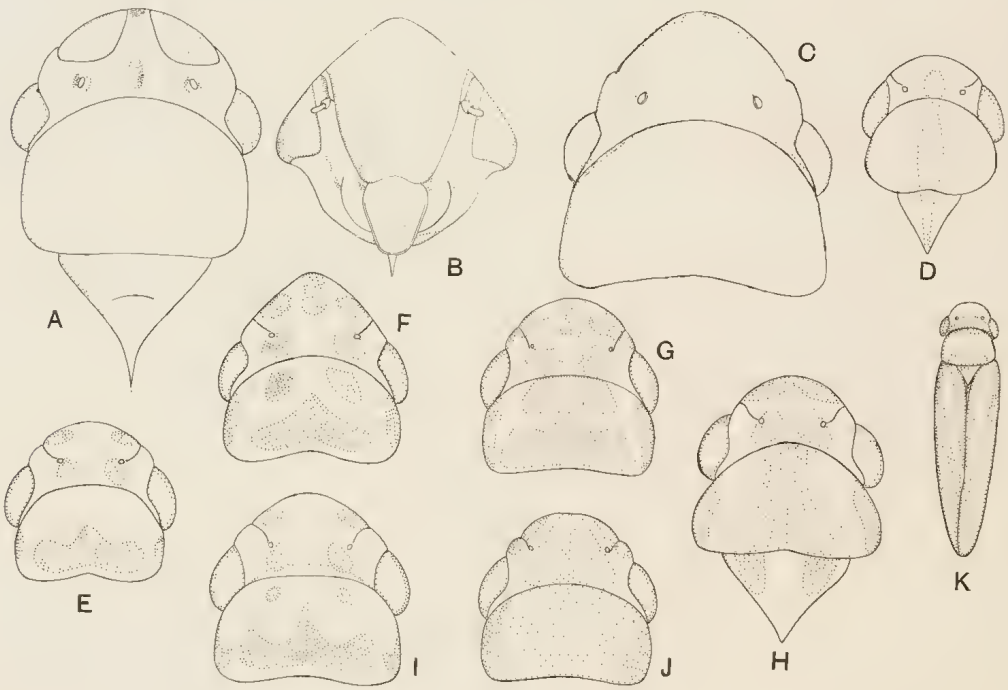


Fig. 23: A, *Cicadella spectra*, head and thorax; B, *Cicadella parthaon*, face of head; C, *Cicadella pasiphae*, head and pronotum; D, *Cicadella perkinsi*, head and thorax; E, *Kolla latromarginata*, head and thorax; F, *Kolla angustata*; G, *Kolla tumida*; H, *Kolla richmondensis*; I, *Kolla albomarginata*; J, *Kolla sidnica*; K, *Kolella pupula*.

Cicadella spectra (Distant)

(Fig. 23, A)

Tettigonia albida Signoret, 1853, Ann.Soc.Ent.Fr. 21 (3): 663.

Tettigoniella spectra Distant, 1908, Faun.Brit.Ind. 4: 211 (nom.nov.).

Length, ♂, 7-8·3 mm; ♀, 9-11 mm. General coloration pale greenish-white. Face of head pale yellowish, medially brown; muscle impressions distinct; three large black spots posteriorly between the eyes. Crown of head concolorous with the face, also with 3 black spots, posteriorly, between the eyes; two lateral dark markings may surround the ocelli, or be absent. Pronotum and scutellum pale greenish-yellow. Tegmen, very pale hyaline greenish-white; veins usually brown.

Type Location—British Museum.

Type Locality—Unknown.

Known distribution elsewhere—North Australia, as far south as Brisbane in eastern Australia; Lord Howe Island; widely distributed in tropical Asia and Africa.

Collected on—Grasses.

Cicadella perkinsi Kirkaldy

(Fig. 23, D)

Tetigonia perkinsi Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. (1) 9: 319.

Tetigonia koebelei Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 319 (syn.nov.).

Length, ♂, 6, ♀, 6·5 mm. General coloration pale whitish-testaceous. Face of head coffee-colour with 3 prominent round black markings posteriorly between the eyes. Crown of head pale testaceous with a large centrally situated black marking. Pronotum and scutellum concolorous with the crown, with a broad median longitudinal brown, or dark brown, stripe. Tegmen, ivory; veins brown.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Cicadella parthaon Kirkaldy

(Fig. 23, B)

Tetigonia parthaon Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 321.

Length, ♀, 10-10·5 mm. Head and pronotum apricot-yellow. Pronotum apricot-yellow, sometimes laterally brown. Tegmen apricot-yellow; apical cells colourless; cell enclosed by arms of Cu 1, smoky-grey; a broad chocolate longitudinal stripe, close to, and parallel with the anal margin.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Known distribution elsewhere—Ayr, Claudie River (Queensland); Sogeri (New Guinea).

Collected on—Grasses.

Cicadella pasiphae (Kirkaldy)

(Fig. 23, C)

Tetigonia pasiphae Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 320.

Length, ♂, 10, ♀, 11·8 mm. General coloration, uniform yellowish-white. Scutellum with a pair of small black, round, lateral spots.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Known distribution elsewhere—Tully (Queensland); Mt Lamington district (New Guinea).

Kolla Distant

Kolla Distant, 1907, Faun.Brit.Ind.Rhyn. 4: 223.

Several of the cicadellids which occur in Australia are confined to the northern warmer areas of the continent. There is, however, one group of species which is more widely distributed. Some of its representatives occur not only in southern Australia and Tasmania but also, in some localities, form part of the montane fauna.

These insects, which when dried have yellow and when alive green and black markings on the head and thorax, and metallic green tegmina with a broad pale costal stripe, seem to be congeneric with the type species of the genus *Kolla* Distant and are accordingly tentatively placed in this genus. While some of the many colour forms which previously have been regarded as species are now placed in synonymy, a few are retained as their genitalia and other characteristics suggest they merit specific status.

Distant's description of this genus, though adequate for the type species, is not sufficient to include the Australian representatives. No useful purpose would be served by attempting a redescription, since characters enabling generic recognition of the comprised species have already been given. The illustrations will enable specific recognition.

Type species—*Kolla insignis* Distant (India).

In 1938, at the time that several new species ascribed to the genus *Cicadella* Latreille were described, illustrations were given labelled "*C. albomarginata* Signoret" and "*C. richmondensis* Distant". These were made from incorrectly identified insects. Both of the insects illustrated, and formerly named as above, represent undescribed species and the former of these is described as a new species. Representative material of the latter species is not at present available.

Kolla albomarginata (Signoret) (comb.nov.)

(Fig. 23, I)

Tettigonia albomarginata Signoret, 1853, Ann.Soc.Ent.Fr. (3) 1: 347.

Tettigonia pettimolua Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp. 1 (9): 321.

Cicadella heroni Evans, Pap.Roy.Soc.Tasm. 1938: 3 (syn.nov.).

Length, ♂, ♀, 8 mm.

Type Location—Natural History Museum, Vienna.

Type Locality—"Australia".

Known distribution—Mt Tambourine (Queensland); Ulong, Tooloom (New South Wales).

Kolla latromarginata (Distant) (comb.nov.)

(Fig. 23, E)

Tettigoniella latromarginata Distant, 1917, Ann.Mag.Nat.Hist. 20: 190.

Length, ♂, 6·5-7 mm; ♀, 7-8·2 mm.

Type Location—British Museum.

Type Locality—Upper North Pine, Queensland.

Known distribution elsewhere—Mackay, Roma, Brisbane (Queensland); Sydney, Bellingen (New South Wales).

Kolla richmondensis (Distant) (comb.nov.)

(Fig. 23, H)

Tettigoniella richmondensis Distant, 1917, Ann.Mag.Nat.Hist. 20: 191.

Cicadella turneri Evans, 1942, Pap.Roy.Soc.Tasm. 1941: 28 (syn.nov.).

Length, ♂, 8 mm.

Type Location—British Museum.

Type Locality—Richmond River, New South Wales.

Known distribution elsewhere—National Park, Sunnybank, Tambourine Mountain (Queensland).

Kolla angustata (Evans) (comb.nov.)

(Fig. 23, F)

Cicadella angustata Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 3.

Cicadella naomiae Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 3 (syn.nov.).

Cicadella dianae Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 4 (syn.nov.).

Cicadella markei Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 4 (syn.nov.).

Length, ♂, 6-7 mm; ♀, 8 mm.

Type Location—Queensland Museum.

Type Locality—National Park, Queensland.

Known distribution elsewhere—Cradle Mountain, Mt Wellington (Tasmania); Croydon, Balwarriong (Victoria); Coonabarabran (New South Wales); Comaum (South Australia); King Georgc's Sound (Western Australia); Mt Lidgbird (Lord Howe Island).

Kolla sidnica (Evans) (comb.nov.)

(Fig. 23, J)

Cicadella sidnica Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 4.

Length, ♂, 6 mm.

Type Location—Australian Museum.

Type Locality—Sydney, New South Wales.

Kolla tumida sp.nov.

(Fig. 23, G)

Length, ♀, 7 mm. Face of head, orange, the ante-clypeus and the longitudinall stripes on the fronto-clypeus, black. Apex of head with a circular black marking. Pronotum and scutellum orange with black markings as shown in Fig. 23, G. Scutellum orange, lateral corner, black. Tegmen bluish-black with a narrow yellowish stripe along the costal margin.

Holotype ♀ from Berrima, New South Wales (coll. C. Crowe) in the Australian Museum.

Kolla quadrata (Walker)

Tettigonia quadrata Walker, 1851, List.Homopt.Brit.Mus. 3: 781.

This species cannot be identified from the description but certainly belongs to the same group of species as the foregoing.

Type Location—(missing from the British Museum).

Type Locality—Van Diemen's Land.

Kolella gen.nov.

Very small leafhoppers, the folded tegmina tapering apically. The face of the head is triangular in shape and the fronto-clypeus medially flat, sloping steeply at the sides. The antennal ledges are steeply oblique and parallel with the interior margins of the eyes. The external margin of the crown of the head, including the eyes, forms a continuous curved surface. The pronotum is rectangular in shape with outwardly, slightly curving, sides.

Type species—*Kolla pupula* Kirby (Ceylon).

Kolella differs from *Kolla* Distant in characteristics of size and in the shape of the head and pronotum.

Kolella pupula (Kirby) (comb.nov.)

(Fig. 23, K)

Kolla pupula Kirby, 1891, J.Linn.Soc. 5: 24, 169.

Tetigonia anemolua Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 322 (syn.nov.).

Length, ♂, 4-8 mm; ♀, 5·2 mm. General coloration black with bold orange, or deep pink, markings.

Face of head pale yellowish; fronto-clypeus, posteriorly, sometimes black. Crown of head with a variable pattern of black and orange and pink. Pronotum black with a broad, orange, or pink, arcuate marking, or with a pair of broad lateral similarly coloured areas. Scutellum black. Tegmen black with 2 longitudinal orange-yellow, or pink, stripes of varying extent, one situated on the clavus, the other adjacent to the costal margin.

Type Location—British Museum.

Type Locality—Punduloya, Ceylon.

Known distribution elsewhere—Macpherson Ranges, Coen, (Queensland).

Mileewanini*

Up to the present no representatives of this tribe, which is distributed in the Oriental Region and tropical Africa, have been recorded from Australia, but mention is made of it since at least 1 species occurs in New Guinea. These insects are fragile in appearance and are not cylindrical in shape. They are approximately 5 mm long, and in colour dark brown, or black, with pale hyaline areas on the tegmina. The tegmina, which are widest apically and have wide appendices, lack vein M1 + 2. The ocelli are on the crown, and the head is similar in structure to those of insects comprised in the Cicadellini.

Mileewa Distant

Mileewa Distant, 1907, Faun.Brit.Ind.Rhyn. 4: 238.

Type species—*Mileewa margherita* Distant (Assam).

Nirvaninae

The Nirvaninae are a group of predominantly tropical leafhoppers which are most abundantly represented in the Oriental Region. In Australia, they have sparse representation, as part of the Indo-Malayan fauna of north-eastern Australia, and a few species, one belonging to an endemic genus, have been recorded from other parts of the continent.

They are mostly somewhat flattened insects with the ocelli on the crown of the head, which is extensive. The antennae are often very long and the tegminal venation reduced or obscure. In colour they are usually yellow, white or orange, but may be green, and sometimes they have red and brown markings.

Baker (1923) separated this group of leafhoppers (to which he ascribed family status) into 3 component sub-families, all of which are represented in Australia and are recognised as tribes. A fourth tribe is created to contain the very distinctive genus *Occinirvana* Evans, which is endemic to Western Australia.

Key to the Tribes of the Nirvaninae represented in Australia

1. Ocelli visible from above.....2
   Ocelli not visible from above; head broadly laminately produced, thickened dorso-ventrally..... **Stenometopiini**

2. (1) Face of head about as broad as long; crown short, half-ovate; ocelli nearer to eyes than to each other..... **Macroceratogoniini**
   Not as above, crown of head longest in the centre 3

3. (2) Ocelli nearer to the eyes than to the anterior apex of the crown.... **Nirvanini**
   Ocelli nearer to the apex of the head than to the eyes..... **Occinirvanini**

Stenometopiini

Stenometopius Matsumura

Stenometopius Matsumura, 1914, J. Coll.Agric.Sapporo 5: 217.

Stenometopius Matsumura, Baker, 1923, Philipp.J.Sci. 23: 400.

*This tribe has recently been assigned to the Typhlocybinae (Young, D. A., 1965 *Zodog. Beiträge* 11 :369.)

The head is broadly laminately extended and dorso-ventrally thickened. On the face, the ante-clypeus is parallel-sided and the lora extend anteriorly almost as far as the outer margins of the maxillary plates. The fronto-clypeus is anteriorly flattened and posteriorly slopes steeply on either side; apically it consists of a sharp, deep keel. The ocelli are on the face, adjacent to the sides of the epicranial suture. The crown of the head, which is more than three times the length of the pronotum, is parallel-sided and apically rounded with a raised marginal rim. It is posteriorly slightly convex and anteriorly concave. The eyes are longer than the pronotum, which is parallel-sided. The venation of the tegmina is distinct, and vein M 1 + 2 is present and apically incorporated with Rs.
Type species—*Stenometopius formosanus* Matsumura (Formosa).

Stenometopius bunyensis sp.nov.

(Fig. 24, I, L)

Length, ♀, 5·4 mm. Face of head pale greyish-brown; crown pale ivory with 2 pairs of stripes, the anterior pair brown and laterally branched; the posterior pair, which commence close to the hind ends of the former, and are more laterally placed, orange, anteriorly curved outwards and posteriorly extending across the pronotum to the lateral apices of the scutellum. Tegmen, pale hyaline brown with white, sub-apical markings, and with dark brown markings at the apices of Rla and Rlb; appendix wide.

Holotype ♀, from the Bunya Mountains, Queensland (coll. J.W.E., 5/58), in the collection of the Australian Museum.

Macroceratogoniini

Macroceratogonia Kirkaldy

Macroceratogonia Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 323.

The face of the head is approximately as wide as long and slightly transversely convex. The ante-clypeus is widest anteriorly and the maxillary plates extend beyond the ante-clypeus. Each lorum is twice the width of the ante-clypeus. The fronto-clypeus is slightly convex anteriorly and posteriorly flat and the hind margin of the face is raised into a widely arched rim. The antennae are almost as long, or longer, than the whole insect. The crown of the head, which is almost as long as the pronotum, is medially depressed and the anterior and posterior margins are parallel with each other. The eyes, which are equal in length to half the width of the crown, do not form a continuous line with the margin of the rest of the head. The ocelli are equidistant between each other and the adjacent eye. The scutellum is equal in length with, or longer, than the pronotum. In the tegmen, Rs is present and M 1 + 2 is lacking.

Type species—*Macroceratogonia aurea* Kirkaldy.

Petalocephala aurescens, described by Distant (1920) from New Caledonia, belongs to this genus.

Macroceratogonia aurea Kirkaldy

(Fig. 24, C)

Macroceratogonia aurea Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 323.

Length, ♀, 9 mm. General coloration pale golden yellow; eyes dark; a small dark spot at the base of the appendix.

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Occinirvanini (Tribe.nov.)

Most of the Nirvaninae occurring in Australia belong to the late Indo-Malayan element of the fauna. One genus, *Occinirvana*, of which the type species, *O. eborea* was collected on *Casuarina*, in Perth, Western Australia, very possibly belongs to an older faunal element. It would seem to be related to an Indian genus, *Omaranus* Distant.

The principal features distinguishing insects in this tribe are the position of the antennae, the antennal ledges and the ocelli, all of which are unusually situated, being nearer to the apex of the head than to the eyes.

Occinirvana Evans

Occinirvana Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 156.

The head is produced and spatulate, ventrally concave and dorsally convex and emarginate adjacent to the antennae. The ante- and fronto-clypeus are flat and bordered laterally by deep depressions. The antennae, which are very long, arise from close to the hind border of the face. The ocelli are on the crown of the head and considerably nearer to its anterior apex than to the eyes.

Type species—*Occinirvana eborea* Evans.

Occinirvana eborea Evans

(Fig. 24, G)

Occinirvana eborea Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 157.

Length, ♀, 6 mm. Face of head ivory; lora and ante-clypeus brownish-grey, Crown, pale ivory with a median longitudinal apricot band and 2 narrow, sinuate, lateral bands. Pronotum mottled with apricot antero-laterally, ivory, with a median apricot band. Scutellum with a continuation of the pronotal colour pattern. Tegmen pale hyaline brown. apically brown and with a brown marking at the fork of Cu1; clavus white.

Type Location—British Museum.

Type Locality—Perth, Western Australia.

Collected on—*Casuarina*.

Nirvanini

Key to the Genera of Nirvanini represented in Australia

1. On the face of the head, the fronto-clypeus in part, or entirely, flat, or concave..2
   Fronto-clypeus entirely, either slightly, or steeply convex.....4

2. (1) Insects predominantly yellow, orange, or white in colour; apex of tegmen rounded 3
   Insects predominantly black in colour; apex of tegmen not evenly rounded, orange and black..... **Pseudonirvana** Baker

3. (2) Insects 6 mm, or more, in length; fronto-clypeus entirely medially flat..... ..... **Tortor** Kirkaldy
   Insects not more than 6 mm in length; fronto-clypeus slightly convex anteriorly, concave posteriorly..... **Ophiuchus** Distant

4. (1) Fronto-clypeus steeply, and crown slightly, convex; in the tegmen Rla at right angles to the costal margin..... **Nirvana** Kirkaldy

Fronto-clypeus slightly convex, crown, except laterally, flat; in the tegmen Rla recurved..... **Euronirvanella** gen.nov.

Nirvana Kirkaldy

Nirvana Kirkaldy, 1900, Entomologist 33: 293.

Nirvana Kirkaldy, Baker, 1923, Philipp.J.Sci. 23: 384.

The labium extends slightly beyond the apex of the fore coxae, and the ante-clypeus, which narrows anteriorly, is sometimes apically flattened and posteriorly convex. The fronto-clypeus, which is swollen and medially flat, sloping steeply on either side, has a median carina posteriorly. The antennae are long. The crown of the head, which is arrow-shaped, is slightly transversely convex, or flat, and the ocelli are on the sides of the crown in front of the eyes. The pronotum is slightly wider posteriorly than anteriorly. The venation of the tegmina is obscure.

Type species—*Nirvana pseudommatos* Kirkaldy (Ceylon).

Nirvana adelaideae Evans

(Fig. 24, J)

Nirvana adelaideae Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 5.

Length, ♀, 6 mm. Face of head greenish-yellow, or pale green, sometimes with 2 black spots posteriorly. Crown of head, pronotum and scutellum, greenish-yellow, or pale green, with a median black stripe, which extends posteriorly to the apex of the scutellum. Tegmen, hyaline green or pale brownish-yellow, with an ante-apical hyaline white fascia and a small brown marking adjacent to the appendix.

Type Location—Australian Museum.

Type Locality—Adelaide, South Australia.

Known distribution elsewhere—Swan River (Western Australia); Cammeray (New South Wales).

Ophiuchus Distant

Ophiuchus Distant, 1918, Faun.Brit.Ind.Rhyn. 7: 33.

It is uncertain whether the species listed below is truly congeneric with the type species of this genus. For this reason no generic description is given.

Type species—*Ophiuchus princeps* Distant (India).

Ophiuchus pallidus Evans

Ophiuchus pallidus Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 6.

Length, ♀, 6 mm. General coloration pale yellowish-white. Face of head convex anteriorly, concave posteriorly. Crown spatulate, anteriorly flat, sloping posteriorly. Tegmen milky-white with a dark marginal spot between the arms of Cul.

Type Location—South Australian Museum.

Type Locality—Stewart River, Queensland.

Tortor Kirkaldy

Tortor Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 42.

Austronirvana Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 41 (syn.nov.).

The labium extends to the base of the fore coxae and the ante-elypeus, which narrows apically, is flat or slightly convex. The maxillary plates either together with the ante-elypeus anteriorly form a continuous external margin to the head, or they projeet slightly beyond the ante-clypeus. The lora are small, and the fronto-elypeus is either flat, as far as the antennae on either side, or medially flat and sloping laterally towards the antennae. Posteriorly the fronto-elypeus is raised into a marginal rim. The sides of the head, anterior to the eyes, are wedge-shaped. The erown, which is longer than the pronotum and narrows apically, is slightly transversely convex and the ocelli are on the sides of the crown, slightly anterior to the eyes. Thc pronotum is wider anteriorly than posteriorly. In the tegmen Rs and M 1 + 2 are absent and there may be several secondary eross veins bctwcen M and Cu 1.

Type speeies—*Tortor daulias* Kirkaldy.

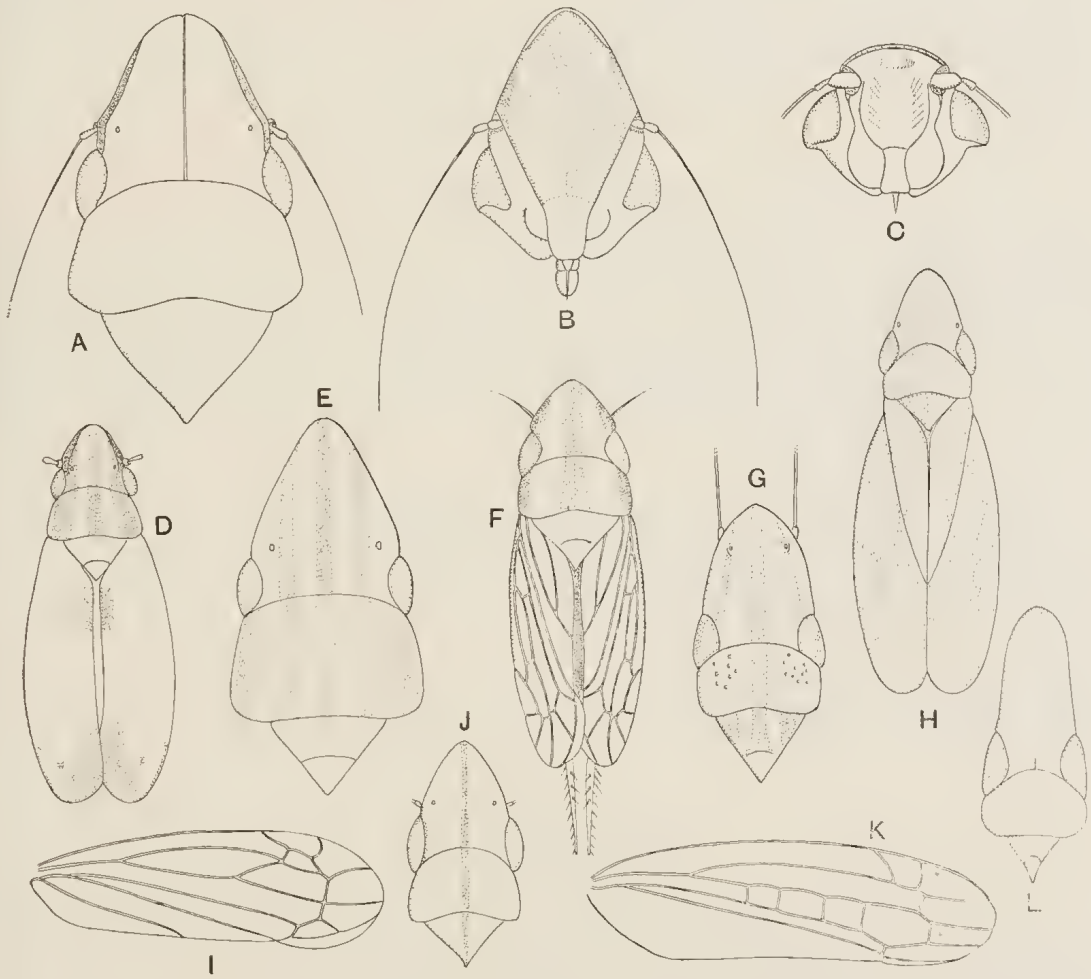


Fig. 24: A, *Tortor daulias*, head and thorax; B, *T. daulias*, face of head; C, *Macroceratogonia aurea*, face of head; D, *Tortor dorrigensis;* E, *Tortor pulchra*, head and thorax; F, *Euronirvanella anomala;* G, *Occinirvana erborea*, head and thorax; H, *Pseudonirvana doddi;* I, *Stenometopius bunyensis*, tegmen; J, *Nirvana adelaideae* head and thorax; K, *Tortor daulias*, tegmen; L, *Stenometopius bunyensis*, head and thorax.

Tortor daulias Kirkaldy

(Fig. 24, K)

Tortor daulias Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 42.

Austronirvana flavus Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 41 (syn.nov.).

Length, ♀, 8·4-10 mm. General coloration, yellow. Crown of head with a singl median longitudinal orange stripe, which sometimes extends onto the pronotum.

On face of head, maxillary plates projecting slightly beyond the anterior margin c the ante-clypeus. Fronto-clypeus flat almost as far as the antennae on each side. Tegmen yellow with 3 small brown spots, one at the apex of the claval suture. The others, whicl are more distally placed, close to the costal and hind margin respectively. Several secondar cross-veins sometimes present between M and Cu 1. (Brown spots are absent on specimen from Lord Howe Island).

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Known distribution elsewhere—Brisbane, Lawes (Queensland); Lord Howe Island.

Collected on—*Eucalyptus* (Brisbane); *Croton* (Lord Howe Island).

Tortor dorrigensis (Evans) (comb.nov.)

(Fig. 24, D)

Kana dorrigensis Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 6.

Length, ♂, 6, ♀, 6·8 mm. Crown of head ivory white with a median longitudina orange stripe and with a single broad orange lateral stripe on each side. Pronotum con-colorous with the crown. Scutellum yellow. On face of head, outer margin of maxillary plates and ante-clypeus, not forming a continuous border; ante-clypeus flat; fronto-clypeus flat as far as the eyes on each side.

Tegmen hyaline-yellow, or orange, with brown markings which vary in extent; ar oval brown marking adjoining hind margin of clavus, close to the apex of the scutellum and 2, or 3, small sub-apical brown markings invariably present; appendix, and adjoining cell, smoky; hind margin of clavus, in part, entirely red.

Type Location—South Australian Museum.

Type Locality—Dorrigo, New South Wales.

Known distribution elsewhere—Brisbane (Queensland); Lord Howe Island.

Tortor pulchra sp.nov.

(Fig. 24, E)

Length, ♂, 6·8, ♀, 9 mm. General coloration pale yellow, or whitish. Crown of head with a median orange longitudinal stripe, and usually on each side, a pair of lateral orange stripes; all 5 stripes continuing onto the pronotum.

On the face of the head the margin of the maxillary plates forming a continuous border with the anterior margin of the slightly convex ante-clypeus. Fronto-clypeus narrowly, medially, flattened, sloping laterally towards the antennae.

Tegmen pale yellow, or whitish, with a small brown marking at apex of claval suture.

Holotype ♂, and *Allotype* ♀, from Sunnybank, Queensland in the Queensland Museum. Other specimens from Brisbane, Toowoomba, Claudie River (Queensland). *T. pulchra* differs from the type species in the shape of the face of the head and in the colour pattern of the thorax.

Pseudonirvana Baker

Pseudonirvana Baker, 1923, Philipp.J.Sci. 23: 386.

The labium extends to between the apices of the fore coxae, the ante-clypeus narrows anteriorly and the lora are narrow. The maxillary plates are apically lobe-like and the fronto-clypeus, in the centre, is widely flat to slightly concave and slopes steeply laterally. From above, the sides of the face are narrowly visible and the crown, which is margined by a low carina, is apically flattened and posteriorly slightly convex. The ocelli are on the crown of the head, anterior to, and close to, the eyes. The pronotum is parallel-sided and the tegmina, which may be apically rounded or blunt, have obscure venation. Rla slopes backwards.

Type species—*Pseudonirvana sandakanensis* Baker (Borneo).

Pseudonirvana doddi sp.nov.

(Fig. 24, H)

Length, ♀, 5·2 mm. Face and crown of head, shining black, except laterally, where they are yellowish-brown. Pronotum and scutellum shining black. Tegmen irregularly rounded apically, proximally opaque-black; apically hyaline brown. Between these 2 zones, a hyaline yellow area against the costal margin, followed distally by 3 brown stripes lying along the branches of R. Three separate hyaline pale areas; also a triangular dull white area against the posterior claval margin.

Holotype ♀ from Brisbane, Queensland (coll. R. Metcalfe, 20/5/57) in the Queensland Museum.

Euronirvanella gen.nov.

On the face of the head, the ante-clypeus is parallel-sided, narrowing slightly towards the apex. The fronto-clypeus is medially flat and laterally convex. The antennal pits, which are deep, are situated anterior to the hind margin of the face.

The crown of the head, except laterally in front of the eyes, is flat and slightly depressed close to the apex. The ocelli are situated on the sloping sides, close to, and immediately in front of the eyes. The tegmen is apically blunt and Rla is recurved.

Type species—*Euronirvanella anomala* sp.nov.

Euronirvanella differs from other genera of the Nirvanini represented in Australia in having unusually long style-like pygophore extensions.

Euronirvanella anomala sp.nov.

(Fig. 24, F)

Length, ♂, to the apex of the tegmen, 6 mm; to the apex of the pygophore processes, 7·2 mm.

Face of head, pale parchment colour with a faint brown stripe on the fronto-clypeus; laterally black. Crown and pronotum concolorous with the face, with broad median, and lateral, longitudinal black stripes. Tegmen hyaline, in part brown; apical cells and veins black. Anal veins sometimes confluent or joined by a cross vein. Pygophore processes of male genitalia very long and narrow and extending considerably beyond folded tegmina.

Holotype, ♂, from Springsure, Queensland (E.F. Riek, 4/57) in the Australian National Insect Collection, Canberra.

Macropsinae

This sub-family comprises a group of small leafhoppers of universal distribution. Most described species have been placed in the genera *Macropsis* Lewis and *Oncopsis* Burmeister, of which the type species are representatives of the Palaearctic fauna. The principal feature distinguishing these genera is the direction of the pronotal striations. In *Macropsis* these are oblique while in *Oncopsis* they are transverse.

These insects are abundant in Australia and there is a single species in New Zealand. All of the former so far described, with the exception of two, have been ascribed either to *Macropsis* or *Oncopsis*. However, although some Australian species do have transverse pronotal striations, they nevertheless differ in so many other characters, from *O. flavicollis* (L.) the type species, that it has been decided to remove them from this genus and for the time being to include them, together with the greater part of the remaining Australian species, in the genus *Macropsis*.

There are certain ancient groups of insects in which the various morphological features appear in various species in so many different combinations that it is difficult to separate specific from generic characters and the insects in this sub-family comprise such a group. It is, for instance, possible to separate the Australian fauna of the Macropsinae into groups of species with normal basic venation and groups having two additional cross veins (*r-m* and *m-cu*) in the tegmen; into groups in which one or two cephalic characters are constant and differ from these characters in other species, or into groups based on thoracic characteristics. None of these groups, however, seem to represent natural genera. There are, accordingly, two alternatives, either to create numerous monotypic genera, or else to regard all but the most distinctive species as belonging to a single genus. The second course has been followed, even although it means regarding as congeneric some species which differ very considerably from others.

Thirty-seven species of *Macropsis* are listed in the pages which follow. These represent only a small proportion of the very abundant Australian fauna of these insects and many more species await description. These can be usefully described only when it is possible to undertake a critical revision of the sub-family on a regional or on a world basis.

A new genus has been created to contain a New Zealand species, since not only has it features which separate it from *Oncopsis flavicollis*, but also ones which differ from those found in any of the Australian species of *Macropsis*. This species, *Zelopsis nothofagi* sp.nov. may either be of adventitious origin, or else part of the Antarctic fauna of these islands.

Although very few food plant records are available it would seem that, unlike most Australian leafhoppers, macropsids are not, in general, eucalypt feeders.

Of the two very distinctive species which have been placed in separate genera, and which are confined to south-western Australia, one, *Stenopsoides turneri*, is of particular interest. This is because the gigantism of the pronotum serves to support a presumed affinity between the Macropsinae and the Membracidae, which can be deduced otherwise principally from cephalic characters (Evans, 1948).

Macropsids may be readily recognized by the structure of the face of their heads of which the principal distinguishing features are the anterior position of the antennae and the situation of the ocelli on the face, close to the apices of the epicranial suture. The lora are usually swollen, the maxillary plates narrow, and the impressions of the dilator muscles of the sucking pump visible in the form of compact sausage-shaped markings. The hind tibiae are armed with rows of regular short, strong, spines; the tegmina usually have normal venation and in the male genitalia both the parameres and sub-genital plates are long and narrow.

Key to the Genera of Macropsinae occurring in Australia

1. Face of head almost twice as wide as long; insects over 6 mm in length..... ..... **Stenoscopus** Evans (W.Australia only)

   Face of head not as above; insects less than 6 mm in length.....2

2. (1) Pronotum more than twice the length of the face of the head..... ..... **Stenopsoides** Evans (W.Australia only)

   Pronotum not as above..... **Macropsis** Lewis

Stenoscopus Evans

Stenoscopus Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 166.

Narrowly wedge-shaped insects in which the face is considerably wider than long. The ante-clypeus, which is not separated from the post-clypeus by a transverse suture, is anteriorly declivous and posteriorly considerably wider and swollen, and diamond-shaped. The lora are inflated and in 2 planes, being anteriorly at right angles to the maxillary plates and posteriorly ridged. The narrow maxillary plates are concealed anteriorly by the lora. The overhanging antennal ledges are in alignment with the anterior lateral margins of the post-clypeus. The ocelli are close to the arms of the epicranial suture and the vertex is approximately the same length as the fronto-clypeus. On the dorsal surface the crown is only narrowly developed adjacent to the eyes; the pronotum is anteriorly declivous and is only slightly longer than the wide scutellum. The tegmina have complete basic venation but some veins are sometimes secondarily branched and there may be minor differences of venation between the tegmina of the 2 sides. The hind tibiae are quadrilateral in section with evenly spaced marginal spines, 1 row of which is mounted on small bases. In the male genitalia both the sub-genital plates and parameres are long, narrow and parallel-sided.

Type species—*Stenoscopus drummondi* Evans.

Stenoscopus drummondi Evans

(Figs 4, B; 25, E, I)

Stenoscopus drummondi Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 149.

Length, ♂, ♀, 7 mm; greatest width, 2·4 mm. Head rugose, ochreous, with a pattern of well defined, but variable dark brown or black markings. Pronotum transversely striated, dull yellow with dark markings. Scutellum bright yellow, lateral angles black.

Tegmen vitreous, veins black.

Type Location—South Australian Museum.

Type Locality—Beverly, Western Australia.

Stenopsoides Evans

Stenopsoides Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 153.

The head is slightly longer than wide and transversely convex; a crown is lacking. The pronotum is anteriorly cylindrically produced and viewed from below is almost three times the length of the face of the head. The hind margin of the pronotum is emarginate and the scutellum extensive. The tegmina are apically narrow and their appendices continue around their apices as far as the costal margin.

Type species—*Stenopsoides turneri* Evans.

Stenopsoides turneri Evans

(Fig. 25, F)

Stenopsoides turneri Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 153.

Length, ♀, 7 mm; of pronotum in ventral aspect 3 mm. Face of head yellow with brown punctures; eyes red. Pronotum yellowish-brown with brown punctures, laterally and apically dark brown. Scutellum yellow. Tegmen pale hyaline yellow.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Macropsis Lewis

Macropsis Lewis, 1834, Trans.Ent.Soc.Lond. 1: 49.

It would be misleading to give a description of this genus, since, as has already been mentioned, the Australian insects which are ascribed to it are only doubtfully congeneric with the type species.

Type species—*Cicada virescens* Fabricius (Europe).

Because of the fact that the described species represent only a small part of the actual fauna of macropsids occurring in Australia and because of the lack of readily recognizable distinguishing specific characters, identification of these insects is, at the moment, difficult.

As an aid to identification a list of described species, accompanied by information in respect to size, coloration and distribution, follows. Since the sexes of *Macropsis* spp. do not usually differ significantly in size, particulars of the sex of the species listed are omitted.

Described Australian leafhoppers tentatively ascribed to the genus *Macropsis*

Species	Size (mm)	Colour	Distribution	Species	Size (mm)	Colour	Distribution
filicis	3·2	green	Vic.	*thontias*	3·5	brown	N.Q.
federalis	3·8	green	A.C.T.	*thyia*	3·5	brown	N.Q.
occidentalis	4	green	W.A.	*norrisi*	4	brown	W.A.
hobartensis	4	green	Tas.	*flavomaculatus*	4	brown	W.A.
variabilis	4	green	Tas.	*wellingtonensis*	4	brown	Tas.
viridiceps	4	green	Tas.	*thymele*	4	brown	N.Q.
scopulus	3	brown	W.A.	*wilsoni*	4	brown	Vic.
tasmaniensis	3	brown	Tas.	*lincolnensis*	4	brown	S.A.
oeroe	3·5	brown	N.S.W.				

Described Australian leafhoppers tentatively ascribed to the genus *Macropsis—continued*

Species	Size (mm.)	Colour	Distsi-bution	Species	Size (mm.)	Colour	Distri-butiou
flindersi	4·5	greenish-brown	S.A.	*abscondens*	4·8	green	Tas., Vic.
eburneus	4·5	brown	W.A.	*fergusoni*	5	brown	Tas.
uteolus	4·8	yellowish	W.A.	*subfuscus*	5	brown	S.A.
uscopunctatus	4	brown	W.A.	*tepperi*	5.2	brown	Kanga-roo Is.
melleus	4·8	brown	W.A.				
flexus	3·5	brown	W.A.	*pullus*	5.5	brown	A.C.T.
bicoloratus	3·5	brown	W.A.	*balli*	5.8	brown	Qld.
declivus	3·5	orange	W.A.	*translucens*	5	brown	S.A.
gibbus	3·8	brown	W.A.				
luteus	3·8	brown	W.A.				
citrinus	4	orange	W.A.				
aeneus	4	brown	W.A.				

Macropsis abscondens (Walker)

Bythoscopus abscondens Walker, 1858, List.Homopt.Brit.Mus.,Supplement, 267.

Macropsis victoriensis Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 64 (syn.nov.).

Length, ♂, 4·5, ♀, 4·8 mm. General coloration greenish-yellow. Head egg-yellow; hind margin of vertex angularly produced. Crown entire, longer laterally than in the centre. Pronotum anteriorly and laterally declivous, olive green, anterior lateral angles, yellow. Tegmen vitreous, excepting apex, which is smoky-grey, and clavus and costal margin, which are apple-green.

Type Location—British Museum.

Type Locality—Tasmania.

Known distribution elsewhere—Burwood (Victoria).

Macropsis thymele Kirkaldy

Macropsis thymele Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 36.

Length, 4 mm. General coloration pale ochreous. Tegmen pale yellowish-hyaline.

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Macropsis oeroe Kirkaldy

Macropsis oeroe Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 36.

Length, 3·5 mm. Head, pronotum and scutellum pale ochreous, closely and finely punctured with purplish brown. Tegmen hyaline, pale yellowish-brown; veins brown barred with white, cross-vein *r* lacking and vein M 1 + 2 meeting Rs at the point where it branches from R.

This species is close to *M. thymele* and may be distinguished by the venation character mentioned and, as well, by having a less declivous pronotum.

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

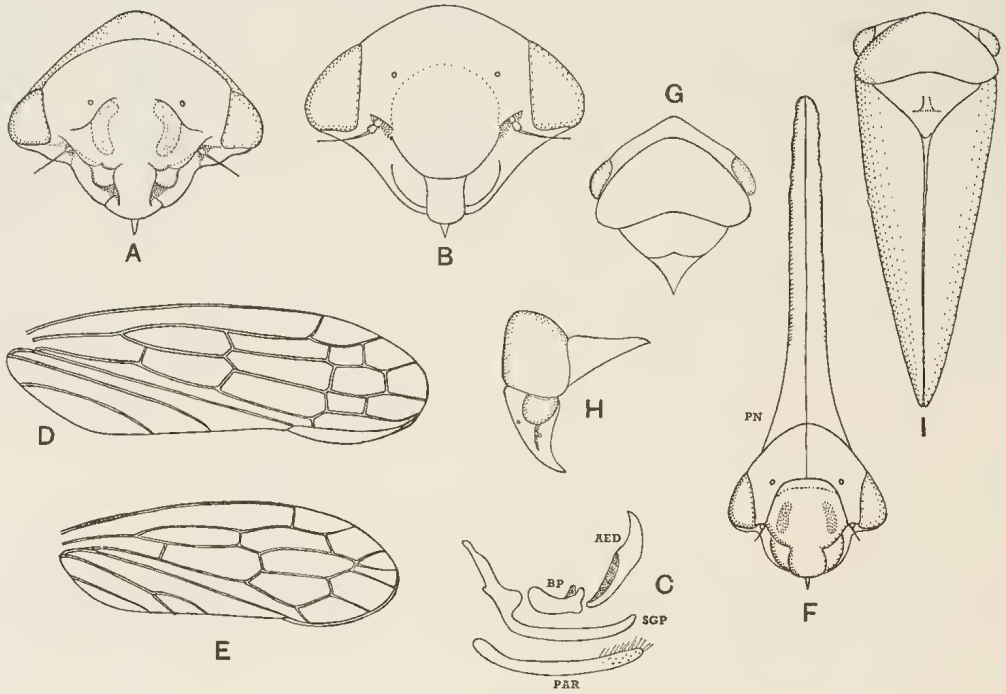


Fig. 25: A, *Macropsis pullus*, face of head; B, *Zelopsis nothofagi*, head; C, *Z. nothofagi*, male genitalia; D, *Macropsis scopulus*, tegmen; E, *Stenoscopus drummondi*, tegmen; F, *Stenopsoides turneri*, face and pronotum; G, *Macropsis wellingtonensis*, head and thorax; H, *Macropsis tepperi*, head and thorax, lateral aspect; I, *Stenoscopus drummondi*. AED, aedeagus; BP, basal plate; PAR, paramere; SGP, subgenital plate.

Macropsis thontias Kirkaldy

Macropsis thontias Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 37.

Length, 3·5 mm. Face of head in one plane and, together with pronotum and scutellum, yellow with fine brown punctures. Crown narrow. Pronotum declivous but not overhanging the face of the head. Tegmen whitish hyaline with 2 transverse brown fasciae and with raised white spots on the veins.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Macropsis thyia Kirkaldy

Macropsis thyia 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 36.

Length, 3·5 mm. Close to *M. thontias*, differing in having the muscle impressions on the face depressed and the pronotum more declivous. Head and thorax yellowish wit

brown punctures and brown markings. Tegmen whitish-hyaline with 2 transverse brown fasciae and with raised white spots on the veins.

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Macropsis citrinus Evans

Macropsis citrinus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 154.

Length, ♀, 4 mm. Head, pronotum and scutellum bright orange. Tegmen, narrow apically, colourless hyaline; veins pale brown. Thorax and abdomen, ventral surface, black. Legs, orange, spurs on hind tibiae black.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Macropsis declivus Evans

Macropsis declivus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 154.

Length, ♀, 3·5 mm. Head, anterior to ocelli, orange-yellow with reddish-brown punctures; muscle impressions pale orange; posterior to ocelli, medially grey, laterally pale pinkish-white with brown punctures; eyes dark reddish-brown. Pronotum, anterior third steeply declivous, approximately at right angles to the remainder which is flat; antero-laterally orange, without punctures, otherwise greyish-brown, with dense brown punctures. Scutellum orange-brown with sparse brown punctures. Tegmen, whitish-hyaline with large round, brown spots, lying principally adjacent to the veins; veins pale brown.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Macropsis eburneus Evans

Macropsis eburneus, 1942, Trans.Roy.Soc.W.Aust. 27: 153.

Length, ♀, 4·5 mm. Head ivory with brown punctures. Fronto-clypeus medially brown with dense dark brown punctures; muscle impressions smooth, yellowish-brown. Crown visible only narrowly against the eyes. Pronotum anteriorly cream with dense brown, anteriorly directed striations, steeply declivous; posteriorly grey with scattered brown punctures. Scutellum orange-brown with black punctures. Tegmen hyaline with scattered small brown spots, largely on, and adjacent to, the veins.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Macropsis federalis Evans

Macropsis federalis Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 64.

Length, ♀, 3·8 mm. General coloration, apple green. Head greenish-yellow. Crown developed narrowly against the eyes. Pronotum, anterior margin strongly arched so that in the centre it extends in front of the crown of the head. Tegmen green except for the costal area and the apex which are colourless; appendix wide.

Type Location—Australian Museum.

Type Locality—Canberra, A.C.T.

Macropsis fergusoni Evans

Macropsis fergusoni Evans, 1942, Pap.Roy.Soc.Tasm. 1941: 29.

Length, ♀, 5 mm. Face of head diamond-shaped, pale brownish-yellow with dar brown punctures. Eyes red. Crown developed narrowly against the eyes, but not i centre. Pronotum stecply declivous anteriorly, with brown punctures. Scutellum whitis with sparse dark brown punctures, laterally yellowish-brown. Tegmen whitish-hyalin evenly mottled with black, veins yellow.

Type Location—Australian Museum.

Type Locality—Lake St Clair, Tasmania.

Macropsis filicis Evans

Macropsis filicis Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 64.

Length, ♀, 3·2 mm. General coloration yellowish-green. Pronotum green, slightl declivous. Scutellum yellow. Tegmen yellowish-green, apically white.

Type Location—Australian Museum.

Type Locality—Fern Tree Gully, near Melbourne, Victoria.

Macropsis flexus Evans

Macropsis flexus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 153.

Length, ♀, 3·5 mm. Head buff with minute pale brown punctures; muscl impressions greenish-yellow, eyes reddish-brown, ocelli black. Crown, a narrow band o even width. Pronotum and scutellum concolorous with head, the former slightly declivous Tegmen vitreous; veins brown with white bars.

Type Location—British Muscum.

Type Locality—Dongarra, Western Australia.

Macropsis flavomaculatus Evans

Macropsis flavomaculatus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 154.

Length, ♀, 4 mm. Head apricot mottled with whitish-yellow; eyes dark brown Pronotum anteriorly declivous, greyish-white with apricot punctures. Scutellum concolorou with pronotum, with sparse orange-brown punctures. Tegmen colourless hyaline mottlec with pale coffee brown; veins pale brown with white bars.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Macropsis flindersi Evans

Macropsis flindersi Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 66.

Length, ♀, 4·5 mm. Head pale yellow and grey with a few small scattered ligh brown spots and 2 brown oval markings posterior to the ocelli; eyes pale brick red. Crown developed narrowly against eyes. Pronotum declivous, grey flecked with brown, with ar

anterior, lateral, yellow area on each side. Scutellum egg-yellow with a large black marking against the anterior border. Tegmen very pale hyaline green; veins colourless.

Type Location—South Australian Museum.

Type Locality—Parachilna, Flinders Range, South Australia.

Macropsis hobartensis Evans

Macropsis hobartensis Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 66.

Length, ♀, 4 mm. Head ochreous. Crown wider against the eyes than in centre. Pronotum dull olive green, anterior lateral angles paler than remainder. Scutellum yellow with 2 brown triangular-shaped markings against anterior margin. Tegmen vitreous.

Type Location—Australian Museum.

Type Locality—Hobart, Tasmania.

Macropsis lincolnensis Evans

Macropsis lincolnensis Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 66.

Length, ♀, 4 mm. General coloration pale yellowish-brown. Head pale biscuit colour with brown punctures and 2 oval ochreous markings posterior to the ocelli. Crown from above developed laterally, not in centre. Pronotum light brown with dark brown spots, anteriorly yellow and smooth; posterior two-thirds darker in colour; steeply declivous, so that the anterior margin is almost at right-angles to the posterior margin. Scutellum ochreous, sparsely punctured with brown. Tegmen vitreous, veins brown, except for the clavus, which is hyaline-grey and the veins, buff.

Type Location—South Australian Museum.

Type Locality—Port Lincoln, South Australia.

Macropsis luteus Evans

Macropsis luteus Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 65.

Length, ♀, 3·8 mm. Head somewhat convex, pale yellowish-brown with dark brown punctures; muscle impressions khaki-coloured. Crown visible from above as a wide band, of even length. Pronotum pale yellowish-brown with brown punctures. Scutellum, anterior two-thirds concolorous with pronotum; posterior third smooth, pale yellowish-white. Tegmen vitreous; veins brown with white bars.

Type Location—Australian Museum.

Type Locality—Bruce Rock, Western Australia.

Known distribution elsewhere—Adelaide (South Australia).

Macropsis occidentalis Evans

Macropsis occidentalis Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 63.

Length, ♀, 4 mm. Head almost flat with a slight median ridge on vertex, punctate. Fronto-clypeus ochreous; rest of the head greenish and ochreous with 2 diffuse black markings on vertex. Crown visible only narrowly adjacent to eyes. Pronotum steeply

declivous anteriorly, higher in the middle than laterally, punctate, pale greenish brown Scutellum smooth, yellowish, apically green. Tegmen pale hyaline yellowish-green.

Type Location—Australian Museum.

Type Locality—Bruce Rock, Western Australia.

Macropsis tasmaniensis Evans

Macropsis tasmaniensis Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 65.

Length, ♀, 3 mm. Head pale yellowish-brown with dark brown punctures; muscl impressions on fronto-clypeus, dark brown. Crown, well developed, of equal length throughout. Pronotum almost flat, greyish-brown with dark brown punctures and 2 dark brown oval markings against anterior border laterally. Scutellum yellowish-brown with brown punctures. Tegmen vitreous; veins brown barred with white; clavus grey.

Type Location—Australian Museum.

Type Locality—Mt Wellington, 4,000 ft, Hobart, Tasmania.

Macropsis variabilis Evans

Macropsis variabilis Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 40.

Length, ♂, 4 mm. General coloration sometimes pale yellowish-green. Face o head wider than long, sordid yellow, eyes red. Crown narrowly developed, longest agains eyes. Pronotum dull brown flecked with black, anteriorly declivous. Scutellum brownish yellow with dark brown punctures. Tegmen smoky hyaline, clavus and costal margin green. Wing with R1 not fully developed apically.

Type Location—South Australian Museum (missing).

Type Locality—New Norfolk, Tasmania.

Macropsis viridiceps Evans

Macropsis viridiceps, 1941, Trans.Roy.Soc.S.Aust. 65: 40.

Length, ♀, 4 mm. Head longer than wide, emerald green. Crown visible as narrow border, widest against the eyes. Pronotum steeply declivous anteriorly, emerald green Scutellum yellow, anterior muscle impressions, brown. Tegmen vitreous, apically pale grey; a black spot at the apex of the claval suture; costal border, proximally black.

Type Location—South Australian Museum (missing).

Type Locality—Hobart, Tasmania.

Macropsis wellingtonensis Evans

(Fig. 25, G)

Macropsis wellingtonensis Evans, 1942, Pap.Roy.Soc.Tasm. 1941: 29.

Length, ♂, 4 mm. Face of head whitish-yellow with sparse brown punctures muscle impressions ochreous; eyes dark brown. Crown wider in the centre than against the eyes. Pronotum declivous, sordid whitish-yellow with brown punctures. Scutellum

erally yellowish-brown, with a median longitudinal white stripe which widens posteriorly. gmen colourless hyaline with 4, ill-defincd, blackish-brown transverse areas.

ype Location—South Australian Museum (missing).

ype Locality—Mt Wellington, 4,000 ft, Hobart, Tasmania.

Macropsis wilsoni Evans

Macropsis wilsoni Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 67.

Length, ♀, 4 mm. Head pale brownish-yellow. Crown visible only narrowly gainst eyes. Pronotum pale brown flecked with chestnut-brown. Scutellum yellow. egmen yellowish-hyaline, anal angle suffused with dark brown.

ype Location—Australian Museum (missing).

ype Locality—Grampian Mountains, Victoria.

Macropsis balli (Kirkaldy) (comb.nov.)

ncopsis balli Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 38.

Length, ♂, 5, ♀, 5·8 mm. Head, pronotum and scutellum yellow, evenly mottled ith brown. Crown of head visible narrowly only against the eyes. Pronotum anteriorly eclivous. Tegmen pale hyaline brown; veins brown.

ype Location—H.S.P.A., Honolulu.

ype Locality—Bundaberg, Queensland.

Macropsis aeneus (Evans) (comb.nov.)

ncopsis aeneus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 154.

Length, ♂, 4 mm. Head, sordid-yellow, eyes red. Crown narrow, visible only gainst the eyes. Pronotum golden brown. Scutellum yellowish-brown. Tegmen bronzy-yaline with a longitudinal white streak against the proximal part of R1. Ventral surface f thorax black, of abdomen, yellowish-brown.

ype Location—British Museum.

ype Locality—Yanchep, Western Australia.

Macropsis bicoloratus (Evans) (comb.nov.)

Oncopsis bicoloratus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 155.

Length, ♂, 3·5 mm. Head yellow with dark brown punctures, muscle impressions n fronto-clypeus, black. Crown narrowly visible against the eyes on each side. Pronotum nd scutellum yellow with sparse brown punctures. Tegmen pale hyaline brown irregularly nottled with brown; veins brown. Thorax and abdomen, ventral surface black.

Type Location—British Museum.

Type Locality—Yanchep, Western Australia.

Macropsis fuscopunctatus (Evans) (comb.nov.)

Oncopsis fuscopunctatus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 155.

Length, ♂, 4 mm. Head pale brownish-yellow, eyes brown. Crown narrow visible against the eyes on each side. Pronotum slightly declivous anteriorly, ochreous brow with brown punctures. Scutellum orange-brown with a few scattered brown spots. Tegm pale brownish-hyaline partially suffused with brown. Thorax and abdomen, ventral surfa black.

Type Location—British Museum.

Type Locality—Dongarra, Western Australia.

Macropsis gibbus (Evans) (comb.nov.)

Oncopsis gibbus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 154.

Length, ♀, 3·8 mm. Head brownish-yellow with evenly distributed black puncture muscle impressions yellow; eyes reddish-brown; vertex, in the centre, dark brown. Crow visible only narrowly against the eyes. Pronotum anteriorly declivous and slightly humpe greyish-brown with evenly distributed black punctures. Scutellum deep buff with scatter brown spots; lateral angles yellow. Tegmen whitish-hyaline evenly mottled with d brown; veins pink. Ventral surface of thorax black, of abdomen black with the hi margin of each segment yellowish-white.

Type Location—British Museum.

Type Locality—Yanchep, Western Australia.

Macropsis luteolus (Evans)

Oncopsis luteus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 155.

Macropsis luteolus nom.nov. for *Oncopsis luteus* Evans, 1942, nec *Macropsis luteus* Evans, 193

Length, ♀, 4·8 mm. Head yellow, eyes dark red, ocelli black. Crown narrow developed against the eyes. Pronotum declivous, greenish-yellow. Scutellum yello Tegmen pale hyaline yellow with a dark brown spot at the apex of the claval suture; vei yellow; 2 cross-veins between M and Cul distal of the forking of M. Ventral surface thorax and abdomen yellow.

Type Location—British Museum.

Type Locality—Dongarra, Western Australia.

Macropsis melleus (Evans) (comb.nov.)

Oncopsis melleus Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 68.

Length, ♂, 4·8 mm. Head whitish-yellow with brown markings; muscle impressio on fronto-clypeus brown edged with black; eyes red. Crown developed only narrow against the eyes. Pronotum concolorous with the head. Scutellum yellowish with bla punctures, lateral angles black. Tegmen pale hyaline brown, apically, and the veins, da brown.

Type Location—Australian Museum.

Type Locality—Dongarra, Western Australia.

Macropsis norrisi (Evans) (comb.nov.)

Oncopsis norrisi Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 40.

Length, ♀, 4 mm. Head, ante-clypeus, lora and maxillary plates, buff; fronto-clypeus reddish-brown; vertex posteriorly dark brown, eyes red. Tegmen, proximally pale yellow, distally testaceous; a wide red area between the costal border and vein R and a transverse median dark brown fascia; clavus yellow, anal margin dark brown; veins distally red.

Type Location—South Australian Museum.

Type Locality—Guildford, Western Australia.

Macropsis pullus (Evans) (comb.nov.)

Oncopsis pullus Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 67.

Length, ♀, 5·5 mm. Head pale brown with dark brown punctures; muscle impressions on fronto-clypeus and a small oval area posterior to each ocellus, ochreous. Crown developed for its full width, longer against the eyes than in the centre. Pronotum concolorous with the head, strongly declivous, the anterior margin approximately at right-angles with the hind margin. Scutellum pale yellowish-brown with dark brown punctures; anterior angles ochreous brown. Tegmen vitreous, apically pale hyaline brown; veins pale brown.

Type Location—Australian Museum.

Type Locality—Canberra, A.C.T.

Macropsis scopulus (Evans) (comb.nov.)

(Fig. 25, D)

Oncopsis scopulus Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 67.

Length, ♂, 3 mm. Head pale and dark brown with dark brown punctures; muscle impressions on fronto-clypeus brown. Crown wider against the eyes than in the centre. Pronotum slightly declivous, anteriorly, medially and laterally, narrowly pale yellow; anterior half dark brown, posteriorly dull grey with ill-defined brown punctures. Scutellum marked with a pattern of yellow and black. Tegmen vitreous apically, and veins brown. Ventral surface of thorax black, of abdomen black, the hind margin of each abdominal segment, yellow.

Type Location—Australian Museum.

Type Locality—Bruce Rock, Western Australia.

Macropsis subfuscus (Evans) (comb.nov.)

Oncopsis subfuscus, 1936, Pap.Roy.Soc.Tasm. 1935: 69.

Length, ♂, 5 mm. Head whitish-yellow with dark brown punctures. Crown visible widely against the eyes, but not in the centre. Pronotum steeply declivous, anterior margin yellow, posteriorly grey with dark brown punctures and round markings. Scutellum yellow with black markings, lateral angles black. Tegmen vitreous, veins brown. Ventral surface of thorax and abdomen marked with a pattern of light or dark brown.

Type Location—South Australian Museum.

Type Locality—Ooldea, South Australia.

Macropsis tepperi (Evans) (comb.nov.)

(Fig. 25, H)

Oncopsis tepperi Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 69.

Length, ♀, 5·2 mm. Head pale reddish-brown with dark brown punctures, hi margin almost transverse. Pronotum medially humped, with light and dark brov markings. Scutellum yellowish-brown, lateral angles reddish-brown. Tegmen brov except for the costal margin, which is white, and the apex and clavus which are mottled w very pale brown. Ventral surface of thorax and abdomen, brown.

Type Location—South Australian Museum.

Type Locality—Kangaroo Island, South Australia.

Macropsis translucens (Evans) (comb.nov.)

Oncopsis translucens Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 68.

Length, ♀, 6 mm. Head yellowish-white, except for the muscle impressions on t fronto-clypeus which are brown, and the rest of the fronto-clypeus, which is dark brov Crown visible narrowly in the centre and widely against the eyes. Pronotum declivo with a slight median anterior hump, pale yellowish-white, punctate. Scutellum yellow w brown punctures and irregular brown markings; lateral angles black. Tegmen vitreo veins pale brown with white bars.

Type Location—South Australian Museum.

Type Locality—Parachilna, Flinders Range, South Australia.

Zelopsis gen.nov.

The face of the head is wider than long, slightly rugose and almost flat. The labiu extends to the base of the hind coxae. The ante-clypeus is parallel-sided and the lo slightly curved and in continuous alignment with the sides of the fronto-clypeus anterior The fronto-clypeus lacks well defined muscle impressions and its hind margin, which is r well defined, is in line with the centre of the eyes. The pronotum, which is approximate equal in length with the scutellum, is slightly declivous anteriorly and is ridged transverse The tegmen has normal venation, except that the proximal cross-vein *m-cu*, which is usua present opposite the proximal junction of R and M, is absent. There may be some sm degree of individual variation in venation. The hind tibiae are armed with strong spin the row of largest spines being mounted on prominent bases.

Type species—*Zelopsis nothofagi* sp.nov.

Zelopsis resembles *Oncopsis* in having transverse striations on the pronotum. It diffe from the type species of this genus, *O. flavicollis* (L.), in the proportions and shape of the hea in having a longer labium, wider lora, a differently shaped ante-clypeus and a considerab smaller fronto-clypeus. Moreover, the head of *Zelopsis nothofagi* is superficially idiocerine appearance.

Zelopsis nothofagi sp.nov.

(Fig. 25, B, C)

Length, ♂, 3·2, ♀, 4 mm. Face of head black, except the maxillary plates whi are white, and the vertex posteriorly which is yellowish brown. Crown of even lengt Pronotum greyish-brown. Scutellum ochreous, sometimes with black markings. Tegm

hitish hyaline with irregular brown markings; veins broadly, or narrowly, brown. ometimes there is an anterior brown fascia, interrupted by the claval suture.

olotype ♀, from Aniseed Valley, Nelson, New Zealand (coll. E.S. Gourlay, 29/12/53) in ıe D.S.I.R. Collection, Nelson, New Zealand. Described from a long series of both sexes, ome of which were labelled as having been collected on *Nothofagus solandri*.

ther locality records: Dun Mountain, 2,000 ft, Nelson.

This is the sole representative of the Macropsinae to be recorded from New Zealand. he fact that it apparently feeds on *Nothofagus* is of considerable interest.

Agalliinae

The Agalliinae are a group of small, narrowly wedge-shaped leafhoppers, which are ostly brown in colour, though some are black, grey or scarlet. They are an abundant oup, of wide distribution in all parts of the world, including New Guinea, but excepting ustralia, from where 1 species only has been recorded. This species is widely distributed . the continent and is probably an introduction. While, up to the present its country of igin is not known with certainty, it probably is of Mediterranean origin.

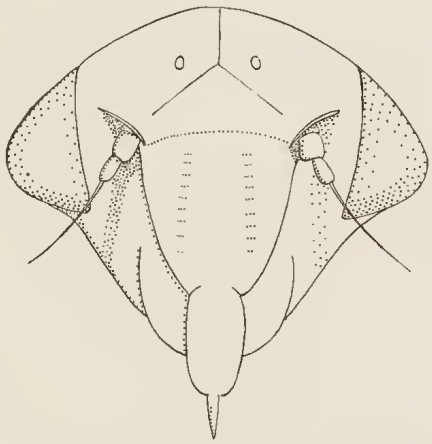


Fig. 26: *Austroagallia torrida*, face of head.

Austroagallia Evans

ustroagallia Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 70.

ragallia Ribaut, Le Quesne, 1964, Proc.R.Ent.Soc.London (B) 33: 73.

The face of the head is wider than long and the ante-clypeus, which is oval in shape, ojects for almost half its length beyond the anterior apices of the lora and maxillary plates. he lora conceal the maxillary plates anteriorly. The fronto-clypeus is almost parallel-sided, ıe antennal ledges oblique, the 2 basal segments of the antennae large and the antennal pressions deep. The Y-shaped epicranial suture terminates above the antennal ledges, ıd the ocelli, which are facial in position, are closer to each other than to the eyes on each de. The crown of the head is of the same length as the adjacent sides of the eyes and nteriorly arched. The pronotum is slightly declivous anteriorly and narrow laterally and

the scutellum has a transverse median depression. The tegmina narrow apically, and venation is complete except for the absence of cross-vein *m-cu* 2. The hind tibiae, which slender, have 3 rows of long, widely spaced spines.

Type species—*Austroagallia torrida* Evans.

Austroagallia torrida Evans

(Fig. 26)

Austroagallia torrida Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 70.

Nehela torrida (Evans), 1941, Proc.Roy.Soc.Queensland, 52: 11.

Peragallia launensis Linnavuori, 1960, Acta.Entom.Fenn. 15: 8 (syn.nov.).

Length, ♂, 3·5, ♀, 4·8 mm. General coloration pale whitish-yellow, with without, dark brown markings. Face of head (in dark form) pale yellow, maxillary pla muscle impressions on fronto-clypeus, external margin of the fronto-clypeus and sub-anten grooves, brown, dark brown or black; epicranial suture, antennal ledges, and an a adjoining the eyes, coffee-brown. On the vertex, visible both in facial and dorsal asp two or 3 large dark markings, the lateral ones, which are approximately circular in outl smaller than the central one. Pronotum yellowish, with two or four black, or brc markings, the anterior pair, which may be faintly developed, are larger and closer to e other than the posterior pair; also a median longitudinal dark stripe. Scutellum yell laterally black. Tegmen hyaline-white with, or without, pale brown markings proxima clavus brown, veins broadly pale yellow; apically vitreous; veins, dark brown.

Type Location—Australian Museum.

Type Locality—Adelaide, South Australia.

Known distribution elsewhere—Wyndham, Perth (Western Australia); Darwin; Carnar Gorge, Maryborough (Queensland); Bandon Grove (New South Wales).

Austroagalloidinae

This endemic sub-family contains, at present, a single genus. As some of the compr species differ considerably from each other in several features, they might seem to warr generic differentiation. Strong sexual dimorphism occurs and the sexes have been correla only in a few species. It is partly for this reason that no new genera have been created also because many of the various distinctive characters occur in overlapping combinat in the various species, thus making generic determination difficult. Leafhoppers in sub-family are of uncertain relationships and though they superficially resemble tl comprised in the cosmopolitan genus *Idiocerus* Lewis they would seem to lack close affi with them.

Austroagalloides Evans

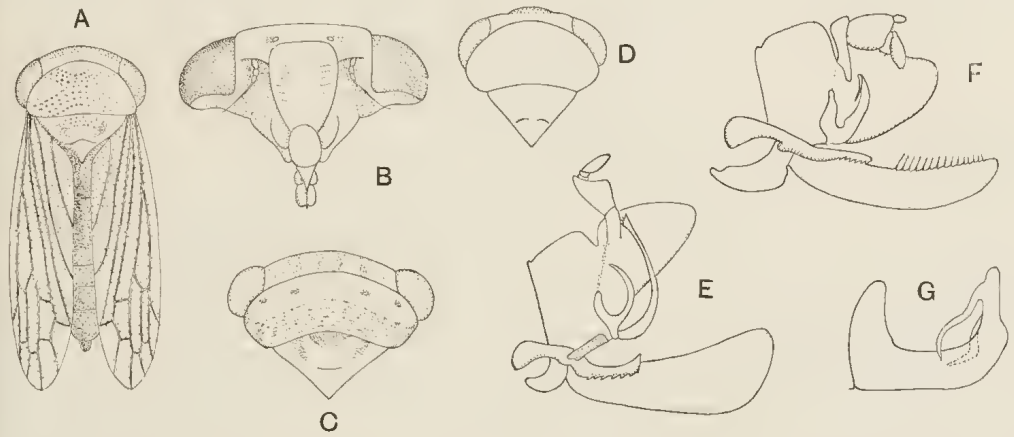
Austroagalloides Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 71.

The face of the head, which is wider than long, is punctate. The labium exte to the base of the middle coxae and the labrum may be of normal size, or unusually v and swollen. The ante-clypeus is convex, oval, and narrow posteriorly. The fronto-clyp is convex, and somewhat flattened medially, as far as the antennal ledges. The anter ledges, which are strongly developed, are transverse, or oblique, and sub-antennal groo are well developed. The eyes are very large and may be greater in width than half the sp between them. The head, posterior to the antennal ledges, is approximately at right an to the face and usually also to the crown. The ocelli are close to the apices of the lat

ontal sutures and may be visible, or concealed, when the insect is viewed in dorsal aspect. he crown may be well defined and of equal length throughout, or longest against the eyes, it may merge with the vertical part of the head. The pronotum is transversely punctate. he tegmina, which are steeply tectiform, narrow apically and have normal venation. An ppendix is absent, or narrowly developed, and the veins may have spots on, or adjacent, them. The hind tibiae are robust either with strong spines, or else slender with weak ines.

The males are considerably smaller than the females and the sexes may differ from ach other in coloration.

ype species—*Austroagalloides karoondae* Evans.



ig. 27: A, *Austroagalloides karoondae;* B, *A. grisea*, face of head; C, *A. wrighti*, head and thorax; D, *A. bliquus*, head and thorax; E, *A. maculata*, male genitalia; F, *A. brunnea*, male genitalia; G, *A. rosea*, aedeagus.

Austroagalloides karoondae Evans

(Fig. 27, A)

Austroagalloides karoondae Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 71.

Length, ♂, 5, ♀, 7·5 mm. Head pale yellowish-brown suffused with pink. Labrum narrow; ante-clypeus a truncated oval; fronto-clypeus medially flattened; eyes approximately half the width of the intervening space. Crown distinct, of equal length with the adjacent sides of the eyes; vertical part of head narrowly visible, but not the ocelli, from above. Pronotum grey, anteriorly pale yellowish-brown with raised transverse black markings. Tegmen hyaline-grey with numerous raised round brown, or black, spots, which are not confined to the veins and their margins; veins pale yellow. Hind tibiae robust with 4 rows of evenly spaced spines.

Type Location—South Australian Museum.

Type Locality—Murat Bay, South Australia.

Austroagalloides brunnea Evans

(Fig. 27, F)

Austroagalloides brunnea Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 72.

Length, ♂, 5, ♀, 6·1 mm. General coloration, ♂, pale brown with a central black marking; ♀, uniformly pale brown. Head pale yellow; labrum narrow, ante-clypeus

parallel-sided; fronto-clypeus medially flattened. Crown, of ♂, pale brown with bla markings, well defined, slightly longer against the eyes than in the centre; of ♀, brown, r well defined and forming a continuous curved surface with the face. Ocelli not visible dorsal aspect. Pronotum, of ♂, pale brown with a wide, black, central marking whi continues onto the scutellum, except apically; of ♀, pronotum and scutellum, pale brow Tegmen, of ♂, pale hyaline-brown, clavus, posteriorly, black; of ♀, pale hyaline-brow Veins pale brown with indistinct raised spots. Hind tibia slender with a few weak spin Male genitalia as in Fig. 27, F.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Canberra, A.C.T.

Austroagalloides grisea Evans

(Fig. 27, B)

Austroagalloides grisea Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 71.

Austroagalloides agalliae Evans, 1936, Pap.Roy.Soc.Tasm. 1936: 72 (syn.nov.).

Austroagalloides flavus Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 46 (syn.nov.).

Length, ♂, 5·2, ♀, 7 mm. General coloration biscuit colour. Face of head, ant clypeus, maxillary plates and lora white; fronto-clypeus pinkish-yellow. Labrum broa ante-clypeus widest in centre. Vertical part of head pink; crown yellowish. Crown we defined, wider against the eyes than in the centre. Ocelli not visible from above. Pronotu pinkish-grey, anteriorly smooth; posteriorly with raised transverse black markings. Scutellu grey, smooth. Tegmen, vitreous or hyaline, sometimes with two dark brown markings c the clavus; veins and hind margin, cherry-red; veins with raised spots. Hind tibiae slende armed with delicate spines.

Type Location—Australian Museum.

Type Locality—Canberra, A.C.T.

Known distribution elsewhere—Adelaide (South Australia); Cabramatta (New South Wales Meredith, Timbertop (Victoria); King George's Sound (Western Australia).

Austroagalloides maculata Evans

(Fig. 27, E)

Austroagalloides maculata Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 151.

Length, ♂, 5 mm. General coloration, orange yellow. Head orange yellow, cy red. Labrum narrow; ante-clypeus parallel-sided. Crown well defined, slightly long against the eyes than in the centre; vertical part of face, but not ocelli, narrowly visibl from above. Pronotum deep orange-yellow fleeked with small raised transverse blac markings. Scutellum yellow with a few raised black spots antero-medially; apex separate from the rest by an anteriorly directed semi-circular ridge. Tegmen pale hyaline orang yellow with numerous raised dark brown spots, lying especially along the veins; apicall black. Thorax and abdomen, ventral surface orange-yellow. Hind tibiae orange wit strong, short dark brown spines. Male genitalia as in Fig. 27, E.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Austroagalloides obliquus (Walker)

(Fig. 27, D)

Bythoscopus obliquus Walker, 1858, List.Homopt.Brit.Mus.,Supplement, 267.

Length, ♀, 8 mm. General coloration evenly brownish-yellow with no other colour markings. Labrum narrow; ante-clypeus parallel-sided. Crown wider against the eyes than in the centre, ocelli not visible in dorsal aspect.

Type Location—British Museum.

Type Locality—Tasmania.

Known distribution elsewhere—Mt Kosciusko (New South Wales); Lancefield (Victoria).

Austroagalloides rosea Evans

(Figs. 8, A; 27, G)

Austroagalloides rosea Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 71.

Austroagalloides nigra Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 73.

Length, ♂, 6-8 mm; ♀, 8-10. General coloration ♂, black; ♀, pinkish. Face of head, pale yellow, suffused with pink. Labrum narrow. Ante-clypeus, of ♂, narrow posteriorly, of ♀, parallel-sided. Crown well defined, black or pinkish-yellow, widest against the eyes; ocelli not visible from above. Pronotum, of ♂, pale greyish brown, of ♀, pink; both with irregular black markings anteriorly and transverse black spots posteriorly. Scutellum of ♂, black, of ♀, pinkish, the lateral angles and 2 median round markings, black. Tegmen pale hyaline brown, or, vitreous; veins in ♀ pink with raised spots, the costal border sometimes broadly pink; in ♂, pink, pale border or black. Hind tibia slender, with small spines. Male genitalia as in Fig. 8, A; 27, G.

Type Location—Australian Museum.

Type Locality—Leura, New South Wales.

Known distribution elsewhere—Black Mountain (A.C.T.); Mt Buller (Victoria); Lake St Clair (Tasmania); Kiandra (New South Wales).

Austroagalloides wrighti Evans

(Fig. 27, C)

Austroagalloides wrighti Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 73.

Length, ♀, 7 mm. General coloration pale brown, or buff, with dark grey markings. Width of head 3·5 mm. Face pale yellowish-brown, the fronto-clypeus, which is convex, somewhat darker. Labium short, extending to middle coxae. Ante-clypeus parallel-sided. Posterior vertical part of face, and crown of head, with an irregular pattern of yellow and black. Crown well defined, of even length; ocelli visible in dorsal aspect. Pronotum, anteriorly brownish-yellow with irregular black markings; posteriorly grey with raised transverse black markings. Scutellum rugose, marked with a pattern of light and dark brown. Tegmen, vitreous; veins brown with brown spots lying alongside the principal veins; venation reticulate.

Type Location—South Australian Museum.

Type Locality—Karoonda, South Australia.

egmina are long and narrow, R terminates at the apex of the tegmen as a single vein, ccessory costal veinlets may be present and M 1 + 2 is short. The hind tibiae have 3 rows of long, but not strong, spines, 1 row of which is mounted on enlarged bases.

Type species—*Idiocerus stigmaticollis* Lewis (= *adustus* H.S.).

Twenty-nine species of *Idiocerus* are listed below. These comprise only a small proportion of the very abundant fauna of the species in this genus which occur in Australia. The following annotated list of species is given to aid identification in a simpler fashion than could be provided by a Key.

Described Australian representatives of the Genus *Idiocerus*

Species	Length	Colour	Distribution
candidus	2·2 (♀)	whitish with brown markings	W.A.
insularis	2·4 (♂)	golden yellow	Kangaroo Is.
viridiceps	2·8 (♀)	green	W.A.
cupido	3	yellowish-suffused with pink	N.S.W.
*lesmurdensis**	3 (♀)	thorax yellow, tegmina green	W.A.
macropensis	3 (♀)	thorax yellowish-brown, tegmina whitish-grey	Kangaroo Is.
rubens	3·2 (♀)	red	W.A.
fucatus	3·5 (♀)	apricot	W.A.
nymphias	3·5	greyish-testaceous	N.S.W.
oreias	3·5	brownish with hyaline spots on tegmina	N.S.W.
nerias	3·7 (♀)	greyish-yellow suffused with orange	N.S.W.
coloratus	4 (♀)	yellow	W.A.
divisus	4 (♀)	yellowish-pink	W.A.
luteus	4 (♀)	yellowish-brown	W.A.
xantho	4 (♀)	thorax yellow, tegmina with a longitudinal stripe	Qld.
ipo	4 (♀)	green	Qld.
inconsequens	4·5 (♀)	yellowish-green	Vic.
flindersi	4·5 (♀)	biscuit	Kangaroo Is.
orodemnias	4·5 (♀)	greenish testaceous with dark spots on tegmina	Qld.
swani	4·5 (♂) 6 (♀)	yellowish-pink, black spots on pronotum, tegmina brown	Kangaroo Is.
tambourinus	4·5 (♀)	longitudinal coloured stripes on pronotum, scutellum pink, tegmina hyaline greenish-yellow	Qld.
hyleorias	4·8 (♂)	tegmen with an elongate zig-zag smoky line	Qld.
aulonias	5	pale creamy grey, may be pinkish	Qld.
lacustris	5 (♂)	yellowish-green	Tasmania
cupreus	5·5 (♂)	pinkish-brown; tegmina brown with 2 hyaline white fascia	S.A.
kisseis	5·5 (♂, ♀)	testaceous and pink with prominent markings	Qld.
geoffroyi	6 (♀)	greyish-white with fuscous fasciae on tegmina	Qld.
napais	6·5 (♂)	pale testaceous tinged with green	Qld.
kirkaldyi	6·8 (♀)	yellow, in part pink	N.S.W.
leurensis	8 (♂) 9 (♀)	greenish-yellow	N.S.W.

* 1963, *Pap.Roy.Soc.Tasm.* 1935: 80.

Idiocerinae

This group of leafhoppers is of almost universal distribution as is also the genus *Idiocerus* itself. The principal distinguishing features are the facial position of the ocelli, the presence of a broad, but not produced, crown and tegmina with wide appendices which overlap apically. In the male genitalia the ninth abdominal segment characteristically narrows ventrally and the long, narrow, or broad, sub-genital plates are almost twice the length of the parameres. Six of the 7 genera recorded from Australia are endemic and of these three are confined to Kangaroo Island and two to Western Australia, both areas from which there have been recorded also several endemic species belonging to the genus *Idiocerus*. One introduced species is recorded from New Zealand.

Key to the Genera of the Idiocerinae occurring in Australia

1. Tegmen with vein M 1 + 2 present (Fig. 28, H) 2
   Tegmen with vein M 1 + 2 absent ..... **Pedioscopus** Kirkaldy

2. (1) Ante- and post-clypeus flat, or forming a continuous slightly curved surface 6
   Not as above 3

3. (2) Ante-clypeus sharply angular; ocelli not adjacent to apices of frontal and epicranial sutures ..... **Gnatia** Evans
   Ante-clypeus not sharply angular; ocelli adjacent to apices of frontal sutures 4

4. (3) Hind tibia with a single strong spine mounted on an enlarged base, as well as other smaller spines; ante-clypeus flat anteriorly, steeply convex posteriorly ..... **Austrocerus** Evans
   Hind tibia with 2 strong spines mounted on enlarged bases, and 4 additional smaller spines also mounted on enlarged bases; ante-clypeus not as above 5

5. (4) Ante-clypeus swollen, anteriorly declivous ..... **Idiocerella** Evans
   Ante-clypeus flat and depressed below the level of the post-clypeus ..... **Tumocerus** Evans

6. (2) Face of head emarginate in front of the eyes ..... **Zaletta** Metcalf
   Face of head not emarginate in front of eyes 7

7. (6) Lora on the same plane as the maxillary plates. In the ♀, ovipositor not extending beyond the apices of the folded tegmina ..... **Idiocerus** Lewis
   Lora swollen, raised above the level of the maxillary plates. In the ♀, ovispositor extending beyond the apices of the folded tegmina .... **Musgraviella** gen.nov.

Idiocerus Lewis

Idiocerus Lewis, 1836, Trans.Ent.Soc.Lond. 1: 47.

Slender, delicate insects, the Australian representatives of the genus ranging in size from 3-8 mm. On the face of the head the labium extends to between the middle coxae, the ante-clypeus is widest anteriorly and the lora, do not quite reach as far as the anterior margin of the maxillary plates. The post-clypeus, anterior to the eyes, is on the same plane as the adjacent genae. The antennal ledges are not well developed, excepting adjacent to the frontal sutures. The ocelli are adjacent to the apices of the frontal sutures and the epicranial suture is usually not retained. The crown is of even length with the adjacent sides of the eyes, the pronotum is transversely striated and the scutellum large. The

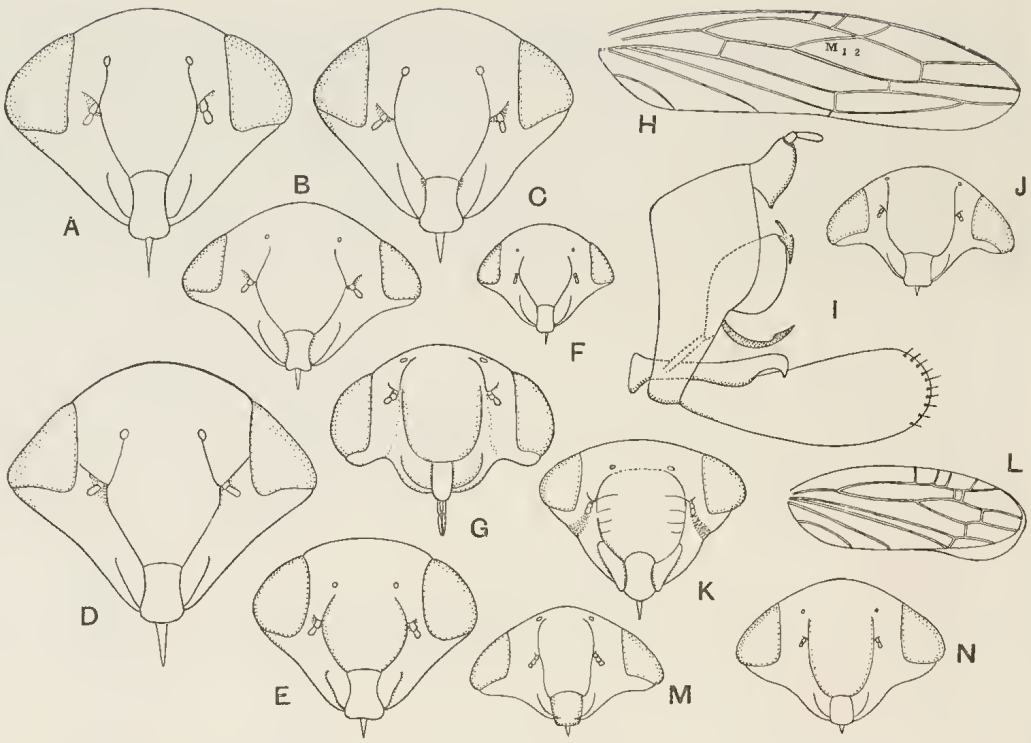


Fig. 28: A, *Idiocerus kirkaldyi*, face of head; B, *I. lacustris*, head; C, *Idiocerus cupreus*, head; D, *Ideocerus leurensis*, head; E, *Idiocerus swani*, head; F, *Idiocerus macropensis*, head; G, *Tumocerus varius*, ♀, head; H, *Gnatia angustata*, tegmen; I, *Tumocerus varius*, male genitalia; J, *Zaletta minutus*, head; K, *Musgraviella tasmaniensis*, head; L, *M. tasmaniensis*, tegmen; M, *Austrocerus emarginatus*, head; N, *Idiocerella obscura*, head.

Idiocerus leurensis Evans

(Fig. 28, D)

Idiocerus leurensis Evans, 1934, Trans.Roy.Soc.S.Aust. 58: 167.

Length, ♂, 8, ♀, 9 mm. General coloration greenish-yellow. Face of head almost as long as wide, flat; antennal ledges distinct, extending as far as eyes; antennal depressions deep. Crown of head of even length with the eyes, sometimes with a small circular brown spot adjacent to the eyes on each side. Tegmen pale hyaline-yellowish; veins colourless.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Leura, New South Wales.

Known distribution elsewhere—Blundells (A.C.T.); Sawpit Creek, Mt Kosciusko (New South Wales).

Idiocerus luteus Evans

Idiocerus luteus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 150.

Length, ♀, 4 mm. Head slightly convex, yellow; eyes black. Pronotum proximally, bronze-hyaline yellow, distally hyaline-brown; veins yellow.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Idiocerus macropensis Evans

(Fig. 28, F)

Idiocerus macropensis Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 37.

Length, ♀, 3 mm. Face of head almost flat, pale biscuit-colour with a posterior rectangular grey area; eyes black; antennal ledges lacking. Crown pale brown and pale yellowish-brown with 2 small black spots close to the anterior margin. Pronotum concolorous with the crown. Tegmen dull whitish-grey; veins white. Thorax, ventral surface black. Abdomen, ventral surface, pale biscuit colour.

Type Location—South Australian Museum.

Type Locality—Flinders Chase, Kangaroo Island.

Idiocerus cupreus (Walker)

(Fig. 28, C)

Bythoscopus cupreus Walker, 1851, List.Homopt.Brit.Mus. 3: 871.

Idiocerus seckeri Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 79 (syn.nov.).

Length ♂, 5·5 mm. Head pale pinkish-yellow. Pronotum concolorous with the head. Scutellum pinkish-brown. Tegmen hyaline-brown with 2 hyaline white fasciae; costal margin between the fasciae, reddish-brown; veins pink. Thorax, ventral surface white with black markings; legs pale yellow. Abdomen, ventral surface black, hind border of each segment, white.

Type Location—British Museum.

Type Locality—Australia.

Idiocerus divisus Evans

Idiocerus divisus Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 80.

Length, ♀, 4 mm. General coloration yellowish-pink, eyes dark brown. Fronto-clypeus swollen.

Type Location—Australian Museum.

Type Locality—Bruce Rock, Western Australia.

Idiocerus aulonias Kirkaldy

Idiocerus aulonias Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 34.

Length, ♂, 5 mm. "Close to *I. kisseis* but pale creamy-grey in general colour, though may be more or less rosy, or, reddish."

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Idiocerus candidus Evans

Idiocerus candidus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 151.

Length, ♀, 2·2 mm. Head, ante-clypeus, maxillary plates and lora, white with dark brown markings; vertex pale brown mottled with brown; eyes brown. Pronotum grey mottled with brown. Scutellum yellowish-white, muscle impressions brown. Tegmen,

claval and costal areas white; remainder hyaline-grey irregularly suffused with brown. Thorax, ventral surface, brown. Abdomen, ventral surface and legs yellow.

Type Location—British Museum.

Type Locality—Dongarra, Western Australia.

Idiocerus coloratus Evans

Idiocerus coloratus, 1942, Trans.Roy.Soc.W.Aust. 27: 150.

Length, ♀, 4 mm. Head slightly convex, yellow; eyes black. Pronotum concolorous with the head. Scutellum apricot. Tegmen proximally bronze-hyaline-yellow, distally hyaline brown; veins yellow. Hind tibia pale green with 2 rows of dark brown spines.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Idiocerus cupido Kirkaldy

Idiocerus cupido Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 34.

Length, 3 mm. Head, pronotum and scutellum and underside pale yellowish, often suffuscd with rosy. Tegmen pale yellowish-testaceous suffused with rosy; veins rosy; apex hyaline.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Idiocerus flindersi Evans

Idiocerus flindersi Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 37.

Length, ♀, 4·5 mm. Head pale biscuit, eyes dull red; ante-clypeus medially depressed, lora swollen; fronto-clypeus antero-medially convex, posteriorly flat. Pronotum and scutellum, pale biscuit. Tegmen vitreous; veins apically pale brown.

Type Location—South Australian Museum.

Type Locality—Flinders Chase, Kangaroo Island, South Australia.

Idiocerus fucatus Evans

Idiocerus fucatus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 150.

Length, ♀, 3·5 mm. Head, ventral surface apricot, eyes red. Crown narrow, of even length throughout; length of each eye equal to half the length of crown. Pronotum and scutellum apricot. Tegmen including the veins, golden-hyaline; vein M 1 + 2 in continuous alignment with the proximal branch of R.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Idiocerus geoffroyi Distant

Idiocerus geoffroyi Distant, 1908, Ann.Soc.Ent.Belg. 52: 99.

Length, ♂, 5·3, ♀, 6 mm. Face of head brownish-yellow, with small, irregularly shaped brown markings on the fronto-clypeus, an irregularly shaped brown marking near each ocellus and a pair of widely spaced black spots posteriorly. Pronotum pale yellowish, or greyish, with an area of mottled dark brown markings behind each eye and sometimes a pair of posterior round black spots. Scutellum pinkish-brown with a pair of broad, irregular, black stripes and anteriorly a pair of triangular black markings. Tegmen pale, or dark smoky hyaline with a broad, transverse, hyaline-white fascia; apically hyaline. The 2 hyaline areas may be confluent. Ventral surface of thorax and abdomen black with yellow markings.

Type Location—British Museum.

Known Locality—Peak Downs, Queensland.

Known distribution elsewhere—Canberra (A.C.T.); Timbertop (Victoria).

Idiocerus hyleorias Kirkaldy

Idiocerus hyleorias Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 34.

Length, ♂, 4·8 mm. " Resembles *I. aulonias* but is smaller and narrower. Tegmen with a somewhat elongate zigzag smoky line down the middle. Last sternite of ♀, sub-truncate. Slightly notched in the middle."

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Idiocerus inconsequens Evans

Idiocerus inconsequens Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 80.

Length, ♀, 4·5 mm. General coloration yellowish-green.

Type Location—Australian Museum (missing).

Type Locality—Emerald, Victoria.

Idiocerus insularis Evans

Idiocerus insularis Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 37.

Length, ♂, 2·5 mm. Face of head evenly convex; ante- and fronto-clypeus apricot, eyes purplish-brown, ocelli black; lora and maxillary plates biscuit-colour; an oval area against the hind margin of the face, purplish-brown. Crown of head medially, pale purplish-brown, laterally apricot, slightly longer in the centre than against the eyes. Pronotum and scutellum golden-yellow. Tegmen, golden-yellow, apically hyaline. Thorax and abdomen, ventrally pale biscuit.

Type Location—South Australian Museum (missing).

Type Locality—Flinders Chase, Kangaroo Island, South Australia.

Idiocerus kirkaldyi Evans

(Fig. 28, A)

Idiocerus kirkaldyi Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 79.

Length, ♀, 6·8 mm. Head flat, yellow suffused with pink with 2 circular black markings on the vertex close to the eyes. Pronotum yellow suffused with pink with 2 black markings behind the eyes, close to the posterior border. Scutellum marked with a pattern of black and pinkish-yellow. Tegmen hyaline, apically grey, costal margin black; veins pink.

Type Location—Australian Museum.

Type Locality—Leura, New South Wales.

Idiocerus kisseis Kirkaldy

Idiocerus kisseis Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 32.

Length, ♂, ♀, 5·5 mm. Head pale testaceous, posteriorly pale pink; vertex with 4 black markings, the two larger, visible dorsally and farther from each other than the smaller pair. Pronotum greyish-pink. Scutellum pale pink with 3 testaceous spots. Tegmen pale olive testaceous, more or less greenish-iridescent.

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Idiocerus lacustris Evans

(Fig. 28, B)

Idiocerus lacustris Evans, 1942, Pap.Roy.Soc.Tasm. 1941: 28.

Length, ♂, 5 mm. General coloration, yellowish-green. Face of head convex, crown wider in the centre than against the eyes. Pronotum shorter than the scutellum. Tegmen hyaline green, apically brown; venation indistinct. Ventral surface of thorax and abdomen, pale green. Hind tibia with 4 spines set on prominent bases in addition to 2 other large spines in the same row.

Type Location—South Australian Museum.

Type Locality—Lake St Clair, Tasmania.

Known distribution elsewhere—Mt Kosiusko, New South Wales.

Idiocerus napais Kirkaldy

Idiocerus napais Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 34.

Length, ♂, 6·5 mm. "Pale testaceous, more or less tinged with green. Tegmen hyaline." Male genitalia, "pygophor long, narrow, apically acute, turned outwards a little".

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Idiocerus nereias Kirkaldy

Idiocerus nereias Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 34.

Length, ♀, 3·7 mm. "Pale greyish-yellow, more or less suffused with orange, subiridescent. Head and eyes much wider than, and strongly decumbent on, the pronotum. Vertex dorsally about as wide in the middle as at the eyes, gently rounded anteriorly; fronto-clypeus rounded in profile; ante-clypeus, wider apically than at the base. Venation of tegmen, obscure. Last abdominal sternite of ♀ slightly emarginate roundly".

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Idiocerus nymphias Kirkaldy

Idiocerus nymphias Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 33.

Length, 3·5 mm. General coloration, greyish-testaceous. Head with 2 small spots on the facial part of the vertex. Scutellum with 2 small wedge-shaped spots anteriorly, partly concealed by the pronotum. Tegmen with veins red, or, brownish.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Collected on—Melaleuca.

Idiocerus oreias Kirkaldy

Idiocerus oreias Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 33.

Length, 3·5 mm. "Differs from *I. nymphias* in having brownish-fuscous tegmina which have 2 larger and 1 smaller translucent spot at the middle in a transverse row, the innermost being on the clavus."

Type Location—H.S.P.A., Honolulu.

Type Locality—Mittagong, New South Wales.

Idiocerus orodemnias Kirkaldy

Idiocerus orodemnias Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 33.

Length, ♀, 4·5 mm. "Head, pronotum and scutellum greenish-testaceous, much discoloured especially on the head. Tegmen hyaline-cinereous, a blackish, or dark fuscous, spot at the junction of the clavus, corium and membrane and another at the apex of the basal part of the subcostal cell; veins greenish-testaceous, partly suffused with dark fuscous. Legs greenish testaceous. Last sternite of ♀ sub-truncate."

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Idiocerus rubens Evans

Idiocerus rubens Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 150.

Length, ♀, 3·2 mm. Head, pronotum and scutellum bright red, sparsely mottled with pale brownish-yellow; eyes black. Crown slightly wider in the centre than against the eyes. Tegmen proximally hyaline-red with irregular whitish markings, distally vitreous; veins pink.

Type Location—British Museum.

Type Locality—Southern Cross, Western Australia.

Idiocerus swani Evans

Idiocerus swani Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 37.

Length, ♂, 4·5, ♀, 6 mm. Head biscuit-coloured, posteriorly suffused with pink; eyes dark reddish-brown. Face of head in 2 planes separated from each other at the level of the antennae. Fronto-clypeus anteriorly convex, posteriorly flat. Crown with a pair of small black spots adjacent to the eyes on each side. Pronotum yellowish-pink, with 2 large black spots in line with the internal margins of the eyes. Scutellum marked with a variable pattern of black, yellow and pinkish brown. Tegmen hyaline brown; veins pink, excepting for the first anal vein, which is white.

Type Location—South Australian Museum.

Type Locality—Flinders Chase, Kangaroo Island.

Idiocerus tambourinus Evans

Idiocerus tambourinus Evans, 1942, Pap.Roy.Soc.Tasm. 1941: 28.

Length, ♂, 4·5 mm. Face of head, ante-clypeus, lora and maxillary plates yellow; fronto-clypeus yellow except for a median rose-pink area posteriorly; vertex and eyes rose pink; ocelli yellow and 2 yellow muscle impressions between the ocelli and the hind margin of the head. Crown of even length throughout. Pronotum with a median pink longitudinal stripe margined with yellowish-grey, pink, black, red and yellow zones. These are not distinct stripes, but merge into each other. Scutellum deep pink, muscle impressions black. Tegmen hyaline greenish-yellow; apex smoky-brown with a broad, black, band merging into pink against the hind border. Thorax and abdomen ventrally pale yellowish-green.

Type Location—British Museum.

Type Locality—Tambourine Mountains, Queensland.

Idiocerus viridiceps Evans

Idiocerus viridiceps Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 151.

Length, ♀, 2·8 mm. General coloration green. Veins on tegmen margined with fine hairs.

Type Location—British Museum.

Type Locality—Dongarra, Western Australia.

Idiocerus xantho Kirkaldy

Idiocerus xantho Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 33.

Length, ♀, 4-4·2 mm. "Head, pronotum and scutellum yellow, or orange yellow. Tegmen hyaline, sub-iridescent, tinged with cinereous, a darkish fuscous longitudinal stripe down the middle of the tegmen and a fuscous spot at the apex of the clavus. Last sternite of ♀ truncate."

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Idiocerus ipo Kirkaldy

Idiocerus ipo Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 466.

Length, ♀, 4·1 mm. "General coloration bright greenish or greenish-yellow. Pronotum, except lateral margins, scutellum, axillary cell of clavus, crimson. Eyes black. Tegmen hyaline tinged with greenish basally and exteriorly; veins greenish. Last abdominal segment of ♀ very obtusangularly emarginate; ovipositor crimson."

Type Location—H.S.P.A., Honolulu.

Type Locality—Brisbane, Queensland.

Idiocerus distinguendus Kirschbaum

Idiocerus distinguendus Kirschbaum, 1868 (see Metcalf, Bibliography).

Length, ♂, 4, ♀, 5 mm. Face of head pale yellow; crown brownish-yellow with 2 small circular brown markings, nearer to the eyes than to each other. Pronotum concolorous with the crown, with 2 pairs of small circular brown markings, the pair nearest the crown closer to each other than are the other pair. Scutellum marked with a pattern of grey and yellow. Tegmen pale hyaline brown with 2 irregular broken transverse white fasciae.

This European insect has been introduced into, and established in New Zealand, where it feeds on *Populus*.

Austrocerus Evans

Austrocerus Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 37.

The ante-clypeus is flat anteriorly and steeply convex posteriorly and the fronto-clypeus is narrow and convex anterior to the antennae. Posterior to the antennae the face of the head is evenly rounded. The maxillary plates are narrow and emarginate and the apices of the frontal sutures are directed inwards. The crown is wide and the coronal suture distinct. The hind tibia has 1 spine set on a prominent base in a row containing 4 other spines.

Type species—*Austrocerus emarginatus* Evans.

Austrocerus emarginatus Evans

(Fig. 28, M)

Austrocerus emarginatus Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 39.

Length, ♀, 3 mm. Face of head, biscuit colour; eyes lemon. Crown longer in the centre than against the eyes, medially apricot, laterally biscuit colour. Pronotum, scutellum and tegmen, apricot. Thorax and abdomen ventrally biscuit.

Type Location—South Australian Museum.

Type Locality—Flinders Chase, Kangaroo Island.

Gnatia Evans

Gnatia Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 150.

The ante-clypeus is angularly swollen, the hind margin of the fronto-clypeus distinct and the ocelli not closely adjacent to the posterior corners of the fronto-clypeus. The crown of the head is of even length throughout and the tegmina, which are long and narrow, have wide appendices. The hind tibiae, which are short, have 2 spines mounted on enlarged bases in addition to several weak spines.

Type species—*Gnatia angustata* Evans.

Gnatia angustata Evans

(Fig. 28, H)

Gnatia angustata Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 150.

Length, ♀, 5 mm. Face of head, ante-clypeus pale brown; lora, maxillary plates and vertex, anteriorly, whitish; fronto-clypeus chestnut-brown mottled with dark brown. Pronotum anteriorly pinkish-yellow, remainder grey. Scutellum pinkish-brown; muscle impressions brown. Tegmen hyaline grey with a dark brown fascia; veins pale brown bordered with a double row of fine hairs. Thorax ventrally black; abdomen yellow.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Idiocerella Evans

Idiocerella Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 39.

On the face of the head the ante-clypeus is swollen and anteriorly declivous and posteriorly narrow. The fronto-clypeus is evenly rounded and narrow and the frontal sutures parallel. The crown of the head is wide and the coronal suture short. The hind tibia has 2 spines set on prominent bases in a row containing 4 other spines.

Type species—*Idiocerella obscura* Evans.

Idiocerella obscura Evans

(Fig. 28, N)

Idiocerella obscura Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 39.

Length, ♀, 3·5 mm. Face of head pale buff, eyes lemon-yellow. Crown slightly anteriorly produced, longer in centre than against the eyes. Pronotum dull buff, wide, with the hind border medially emarginate. Scutellum and tegmen dull buff.

Type Location—South Australian Museum (missing).

Type Locality—Flinders Chase, Kangaroo Island.

Pedioscopus Kirkaldy

Pedioscopus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 349.

This genus which differs from *Idiocerus* in lacking vein M 1 + 2 in the tegmen may be identical with *Busonia* Distant.

Type Species—*Pedioscopus philenor* Kirkaldy.

Pedioscopus philenor Kirkaldy

Pedioscopus philenor Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9); 349.

Pedioscopus agenor Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 349 (syn.nov.).

Pedioscopus polydoros Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 349 (syn.nov.).

Length, ♂, 4 mm. Head and pronotum pale greyish-yellow, sometimes with well or ill-defined, black markings. Tegmen hyaline sometimes basally yellowish; the vein sometimes more or less smoky.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Tumocerus Evans

Tumocerus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 149.

On the face of the head the maxillary plates are narrow and the lora and ante-clypeus flat and depressed below the swollen fronto-clypeus. The crown is as long, or longer, than the eyes and though approximately at right angles to the face forms part of the same curved surface and the ocelli are visible in dorsal aspect. The epicranial suture may be present or absent. The pronotum narrows laterally and the bases of the tegmina lie close behind the eyes. The tegmina have wide appendices and the cross-vein representing M 1 + 2 is unusually long. The hind tibiae, which are short, have 2 strong spines set on enlarged bases in addition to several weak spines.

Type species—*Tumocerus varius* Evans.

Tumocerus varius Evans

(Fig. 28, G, I)

Tumocerus varius Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 149.

Length, ♂, 4 mm. Face of head, apart from the hind margin of the fronto-clypeus, yellow, sometimes with extensive black markings; eyes dark brown, ocelli red. Crown longer in the centre than against the eyes, yellow suffused with brown medially and with 2 circular black markings. Pronotum brownish-grey or brown. Scutellum yellow with 2 triangular brown markings close to the centre; muscle impressions black. Tegmen hyaline, partly suffused with brown; veins dark brown. Thorax and abdomen, ventrally yellow, legs brown. Male genitalia as in Fig. 28, I.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Tumocerus grandis Evans

Tumocerus grandis Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 149.

Length, ♀, 5·5 mm. Head pale buff, eyes dark brown. Crown with 2 circular black markings, longer in the centre than against the eyes. Pronotum concolorous with the crown. Scutellum with 2 small brown spots situated on each side of the centre; muscle impressions dark brown. Tegmen pale hyaline-brown; veins brown. Thorax and abdomen, ventrally pale buff.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Known distribution elsewhere—Kiata (Victoria).

Tumocerus merredinensis Evans

Tumocerus merredinensis Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 149.

Tumocerus glaucus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 149 (syn.nov.).

Length, ♂, 5, ♀, 4 mm. Face of head pale yellowish-grey, eyes red. Crown of even length throughout, narrowly pale yellowish-green against the eyes, medially pink, with 2 marginal large black spots. Pronotum, antero-laterally pale yellowish-green, medially pink. Scutellum apricot. Tegmen proximally, membrane and veins, pale yellowish-green; distally hyaline-brown, or, evenly pale hyaline-brown; veins pale or dark brown. Thorax and abdomen ventrally, and legs, pale yellowish-green.

Type Location—British Museum.

Type Locality—Merriden, Western Australia.

Known distribution elsewhere—Dedari (Western Australia).

Zaletta Metcalf

Macrocerus Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 39 (preoccupied).

Zaletta Metcalf, 1952, J.Wash.Acad.Soc. 42: 229 (nom.nov.).

The ante-clypeus and the fronto-clypeus are wide and almost flat and the maxillary plates are narrow and depressed below the level of the lora. The frontal sutures are directed laterally at their posterior apices and the ocelli are sunk in slight depressions. The crown of the head is long and the coronal suture short. The hind tibiae have 2 spines on prominent bases in a row containing 4 other spines.

Type species—*Macrocerus minutus* Evans.

Zaletta minutus (Evans)

(Fig. 28, J)

Macrocerus minutus Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 39.

Zaletta minutus (Evans), Metcalf, 1952, J.Wash.Acad.Sci. 41: 229 (nom.nov.).

Length, ♂, 3 mm. Face of head lemon-yellow, eyes greenish-yellow. Crown slightly longer in the centre than against the eyes. Pronotum, scutellum and tegmen, pale buff. Thorax and abdomen, ventrally, pale biscuit-colour.

Type Location—South Australian Museum.

Type Locality—Flinders Chase, Kangaroo Island.

Musgraviella gen.nov.

On the face of the head, the labium extends to the base of the hind coxae. The ante-clypeus is hour-glass shaped and the fronto-clypeus, which is evenly convex anterior to the antennae, is almost flat posteriorly. The lora, which are lobe-like and thickened, have straight external margins which are raised above the level of the adjacent maxillary plates. They narrowly conceal the maxillary plates anteriorly, on either side of the ante-clypeus. The antennal ledges are short and well-defined and the ocelli, which are facial in position, are adjacent to the apices of the slightly curved frontal sutures. The crown is of even length throughout and equal in length to the eyes. The pronotum which is two and a half times the length of the crown, is transversely striated. The tegmen is apically broad and has a wide appendix; M 1 + 2, up to its junction with Rs, is unusually long (Fig. 28, L). The hind tibiae, have 3 rows of evenly distributed strong spines and the row of shortest spines is mounted on enlarged bases. In the female, the ovipositor extends considerably beyond the folded tegmina.

Type species—*Musgraviella tasmaniensis* sp.nov.

Musgraviella differs from *Idiocerus* in the shape of the face of the head, in the shape of the tegmen, and in the relative greater length of the ovipositor.

Musgraviella tasmaniensis sp.nov.

(Fig. 28, K, L)

Length, ♀, to apex of folded tegmina, 5 mm; to apex of ovipositor 6 mm. Face of head, pale brownish-yellow with a regular coffee-coloured pattern. Pronotum, anteriorly brownish-yellow, posteriorly ochreous-brown with numerous small brown spots. Scutellum whitish with brown markings. Tegmen, hyaline, colourless; veins brown with white bars. *Holotype*, ♀, from Tasman Peninsula, Tasmania (coll. A. Musgrave, 1/28) in the Australian Museum.

Coelidiinae

The Coelidiinae, which are richly represented in both the New and the Old World tropics, including New Guinea have, in Australia, been recorded only from the coastal area of Queensland and northern New South Wales, where they form part of the late Indo-Malayan fauna. Those representatives which occur in Australia may be recognised by their long antennae and somewhat fulgoroid appearance.

Tharra Kirkaldy

Tharra Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 324.

The face of the head is longer than wide and the labium extends to the base of the hind coxae. The ante-clypeus widens anteriorly and the fronto-clypeus is wider, posterior to the antennae, than in front of them. The antennae are approximately twice the length of the head and the eyes, which lie on a lower level than the fronto-clypeus, are approximately the same length as the latter. The crown of the head is parallel-sided, and has a median carina. It is longer than the pronotum and raised above the level of the eyes. The ocelli are on the declivous anterior margin of the crown. The pronotum, which is collar-like, is punctate. The tegmina which widen posteriorly, lack vein M 1 + 2, and have extensive appendices.

Type species—*Tharra labena* Kirkaldy.

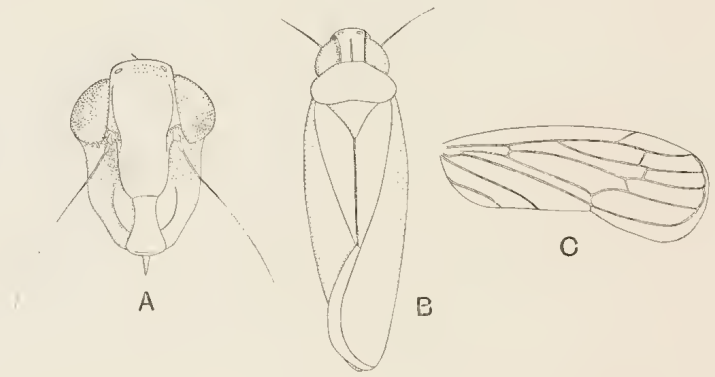


Fig. 29: *Tharra labena*, A, face of head; B, whole insect; C, tegmen.

Tharra labena Kirkaldy

(Fig. 29)

Tharra labena Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 324.

Length, ♂, ♀, 5·3 mm. General coloration golden brown. Face of head, anteriorly pale brown, posteriorly, reddish, or purplish-brown. Crown pale brown. Pronotum and scutellum dark brown. Tegmen hyaline golden-brown, apically smoky; veins red.

Type Location—H.S.P.A., Honolulu (part of tegmen only, preserved).

Type Locality—Kuranda, North Queensland.

Known distribution elsewhere—near Lismore (New South Wales).

Tharra leai Evans

Tharra leai Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 41.

Length, ♂, ♀, 6 mm. General coloration dark brown. Face of head uniformly pale coffee-colour. Crown, pronotum and scutellum dark brown. Tegmen brownish-yellow, or smoky, or purplish-brown, sometimes with a circular white marking close to the stem of Rla; veins dark brown.

Type Location—South Australian Museum.

Type Locality—Cairns, Queensland.

Tharra hackeri sp.nov.

Length, ♂, 5 mm. General coloration, yellowish-brown. Face of head yellowish-, or, reddish-brown. Crown and thorax concolorous with the face. Tegmen, as far as the apex of the claval suture, hyaline yellowish-brown; distally of the apex of the claval suture, uniformly smoky-brown; veins concolorous with the tegmen.

Holotype, ♂, from National Park, Queensland (coll. H. Hacker, 12/23) in the Queensland Museum.

T. hackeri differs from the type species in coloration, in particular in having the veins of the tegmen concolorous with the membrane and not bright red.

Tartessinae

This group of leafhoppers comprises insects which have two unusual structural features. One of these is the retention, in many representatives and especially in the nymphal stages, of the epistomal suture on the face of the head; sometimes also, there is a well-defined frontal region.

The other feature is the continuation of the marginal vein of the hind wing onto the anal area of the wing. This characteristic occurs also among certain Krisnini, a tribe of the Jassinae which is not represented in Australia. Some species belonging to the genus *Krisna* Kirkaldy and to related genera, resemble *Tartessus* spp. also in certain cephalic features, and for this reason the 2 genera may have been derived from a common ancestral stock. They differ, however, in several other structural features, particularly in those relating to the pronotum and tegmina, and consequently are ascribed to different subfamilies. Although the Tartessinae are essentially a group of endemic Australian insects, unlike most other such groups, they have, as well, representation in other parts of the world and occur in the Oriental region, on islands lying between Australia and Asia, and on certain Pacific Islands.

Key to the Australian genera of the Tartessinae

1. Uniformly green insects; crown of head narrowly, or broadly acute, if not acute, longer in the centre than against the eyes ..... **Stenotartessus** Evans

   Insects not green in colour; crown of head, if well defined, equal in length with the eyes laterally 2

2. (1) Labium terminating between hind coxae; pronotum anteriorly depressed; scutellum raised posteriorly ..... **Tartessoides** Evans

   Labium not extending as far as hind coxae; pronotum and scutellum not as above 3

3. (2) Labium not extending as far as base of hind coxae; ante-clypeus usually somewhat swollen; fronto-clypeus progressively widening posteriorly, or parallel-sided posterior to the antennae; venation of tegmen frequently irregular.. **Tartessella** Evans

Labium extending to base of middle coxae; ante-clypeus flat; fronto-clypeus posteriorly, either parallel-sided, or inwardly curved near the level of the antennae; venation never irregular..... **Tartessus** Stål

Tartessus Stål

Tartessus Stål, 1865, Öfvers.Vetensk.Akad.Förh.Stockh. 22: 156.

Species in this genus range from 4-12 mm in length and are mostly brown or black in colour, sometimes with a paler coloured pronotum and scutellum. The labium terminates between the middle coxae and the ante-clypeus is parallel-sided, or narrowest posteriorly. The maxillary plates are wide. The antennal ledges, which are transverse or oblique, are well defined and situated adjoining the centre of the eyes. An epistomal suture may be retained, so that a separate frontal region is discernible and the frons and the adjoining vertex are transversely wrinkled. The arms of the epicranial suture form a transverse ridge on the crown of the head and terminate close to the ocelli, which are marginal in position. The crown is of even length throughout, or widest against the eyes. The tegmina have complete venation and wide appendices which continue around their apices, and usually have a few spines at the apex of the hind margin of the clavus. An examination of the illustrations of the aedeagi of *Tartessus* spp. (Fig. 30, H-V) suggests that a critical study might disclose the need for the comprised species to be grouped into several genera rather than as at present into a single genus. The Australian fauna of leafhoppers in the genus *Tartessus* is an abundant one and very many species await description.

Type species—*Bythoscopus malayus* Stål (= *ferrugineus* Walker).

Tartessus australis (Walker)

Bythoscopus australis Walker, 1851, List.Homopt.Brit.Mus. 3: 872.

Length, ♂, 5·5 mm. General coloration very dark brown; each eye almost as long and wider than the whole of the crown. Face of head black with transverse yellow muscle impressions. Crown and pronotum black, the latter pale brown immediately behind the eyes. Scutellum black. Tegmen pale hyaline brown; veins dark brown. In the Holotype there are 2 cross veins, *m-cu*1 (this may represent an anomalous condition).

Type Location—British Museum.

Type Locality—New Holland.

Tartessus blundellensis Evans

(Fig. 30, V)

Tartessus blundellensis Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 55.

Length, ♀, 9·5 mm. General coloration brown. Face of head, except for the ante-clypeus, which is pale straminaceous, pale coffee-coloured. Crown longer against the eyes than in the centre, comprising part of the frons anteriorly; ocelli on crown. Pronotum pale coffee-colour with irregular whitish markings. Scutellum dull olive brown. Tegmen

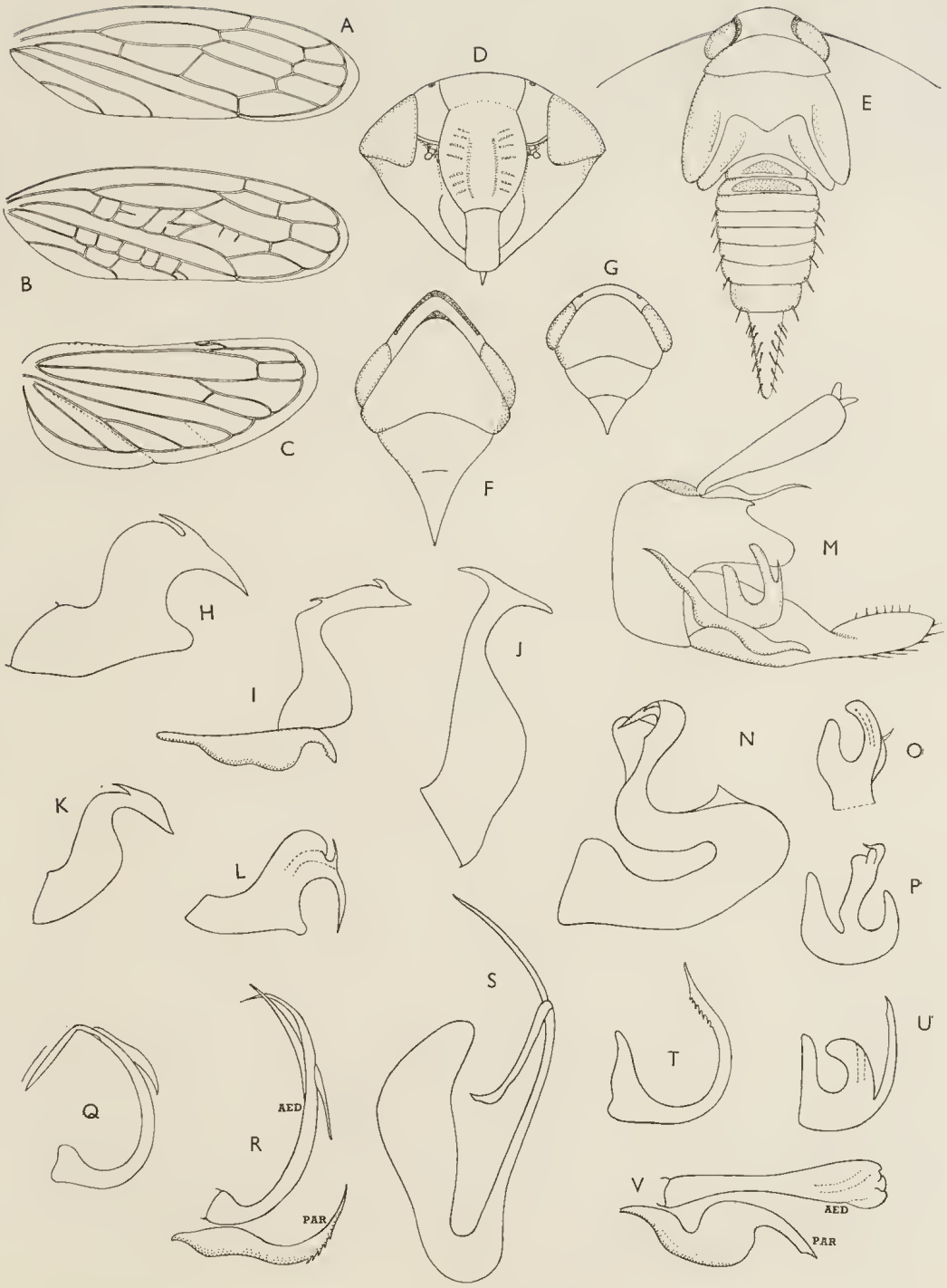


Fig. 30: A, *Tartessus issa*, tegmen; B, *T. spinosa*, tegmen; C, *T. fulvus*, wing; D, *T. flavipes*, face of head; E, *Tartessus* sp., nymph; F, *T. pulchellus*, head and thorax; G, *T. iphis*, head and thorax; H, *T. parvus*, aedeagus; I, *T. flavipes*, aedeagus; J, *T. evansi*, aedeagus; K, *T. fumus*, aedeagus; L, *T. mundarensis*, aedeagus; M, *T. ianassa*, male genitalia; N, *T. pallidus*, aedeagus; O, *T. rubrivenosus*, aedeagus; P, *T. latus*, aedeagus; Q, *T. ianthe*, aedeagus; R, *T. fulvus*, aedeagus and paramere; S, *T. iambe*, aedeagus; T, *T. rugosus*, aedeagus; U, *T. flavus*, aedeagus; V, *T. blundellenis*, aedeagus and paramere. AED, aedeagus; PAR, paramere.

pale hyaline brown; veins brown tinged with purple. Thorax and abdomen, ventrally surface, and legs, pale straminaceous, except for the bases of the spines on the hind tibiae, which are dark brown. Male genitalia as in Fig. 30, V.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Blundells, A.C.T.

Tartessus evansi Metcalf

(Fig. 30, J)

Tartessus obscurus Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 54 (preoccupied).

Tartessus evansi Metcalf, 1955, J.Wash.Acad.Sci. 45: 266 (nom.nov.).

Length, ♂, 5 mm. General coloration, brown. Face of head pale brownish-yellow. Crown, longer against eyes than in centre; ocelli visible from above. Pronotum and scutellum, pale brown. Tegmen pale hyaline brown. Thorax and abdomen, ventrally, and legs, pale brownish-yellow. Male genitalia as in Fig. 30, J.

Type Location—Australian Museum.

Type Locality—Leura, New South Wales.

Tartessus flavipes Spanberg

(Figs 4, A; 5, A, E; 30, D, I)

Tartessus flavipes Spanberg, 1878, Öfvers.Vetensk.Akad.Förh.Stockh. 34: 351.

Tartessus flavipes Spanberg, Linnavuori, 1956, Ann.Ent.Fenn. 22 (4): 176.

Tartessus idyia Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 44.

Tartessus io Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 46 (syn.nov.).

Length, ♂, 6-6·8 mm; ♀, 6·2-7·2 mm. General coloration black or sordid-brown, with a white marking on the clavus apically.

Face of head black, or brown; spaces between the muscle impressions on the post-clypeus yellowish-brown, or marked with a variable combination of bright yellow and black. Crown forming a continuous curved surface with the face, black, or black and yellow, widest against the eyes, which are longer than half the total width of the crown. Pronotum black, narrowly pale brown, or yellow, behind the eyes. Scutellum black, apically pale brown, or yellow. Tegmen smoky-brown, a white hyaline area adjoining a dark brown one at the anal margin of the clavus and another against the costal margin between Rla and Rlb; apical cells distally, and appendix, dark smoky; veins black except the marginal vein, which is yellowish. Male genitalia as in Fig. 30, I.

Type Location—Natural History Museum, Stockholm.

Type Locality—North Australia.

Known distribution elsewhere—Stanthorpe (Queensland); Tooloom, Mittagong, Dorrigo (New South Wales); Lake Mountain, Dartmoor (Victoria).

It is possible that the above species is a synonym of *T. australis*.

Tartessus flavus Evans

(Fig. 30, U)

Tartessus flavus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 156.

Length, ♂, 6 mm. Face of head pale apricot, ocelli red, eyes dark brown. Crown consisting solely of the vertex, pale apricot. Pronotum and scutellum concolorous with the head. Tegmen hyaline-apricot. Thorax and abdomen, ventrally and legs, apricot, the bases of the spines dark brown. Male genitalia as in Fig. 30, U.

Type Location—British Museum.

Type Locality—Yanchep, Western Australia.

Tartessus fulvus (Walker)

(Fig. 30, R)

Bythoscopus fulvus Walker, 1851, List.Homopt.Brit.Mus. 3: 866.

Bythoscopus transversus Walker, 1851, List.Homopt.Brit.Mus. 3: 869.

Tartessus australicus Spanberg, 1878, Öfvers.Vetensk.Akad.Förh.Stockh. 351, 1878.

Tartessus australicus Spanberg, Linnavuori, 1956, Ann.Ent.Fenn. 22 (4): 178.

Bythoscopus latifrons Walker, 1851, List.Homopt.Brit.Mus. 3: 869.

Bythoscopus semicitrinus Walker, 1858, Ins.Saund.Homopt. 105.

Bythoscopus signifrons Walker, 1858, Ins.Saund.Homopt. 106.

Tartessus subniger Signoret, 1880, Ann.Soc.Ent.Fr. 5 (4): 350.

Tartessus syrtidis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 341.

Length, ♂, 8-9 mm; ♀, 9-10 mm. Face of head, of ♂, almost entirely black except for brown transverse muscle impressions; of ♀, ante-clypeus and lora pale yellowish, bordered with brown anteriorly and laterally; maxillary plates, pale yellowish; post-clypeus yellowish, inc dark brown or black, muscle impressions forming a fish-bone pattern; frons wider than post-clypeus and vertex, yellowish; posteriorly broadly dark brown or black. Crown, slightly longer against the eyes than in the centre forming one curved surface with the face, yellowish; ocelli barely visible from above. Pronotum and scutellum pale yellowish-brown. Tegmen hyaline brown, with an obscure pale area between Cu2 and 1A against the anal border, or with one or two pale hyaline fasciae, of which the proximal one may extend across the tegmen, and the distal one be restricted to the area adjacent to the costal margin. Thorax, ventrally black bordered with yellow; abdomen black. Legs pale yellow. Male genitalia as in Fig. 30, R.

Type Location—British Museum.

Type Locality—" Australia ".

Known distribution—Warwick, Brisbane (Queensland); Sydney, Blackheath, Queanbeyan (New South Wales); Mt Dandenong (Victoria); Cannington (Western Australia).

Tartessus fumus Evans

(Fig. 30, K)

Tartessus fumus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 155.

Length, ♂, 6·5 mm. Head yellow; crown incorporating part of the fronto-clypeu anteriorly. Pronotum and scutellum yellow. Tegmen, pale hyaline brown, apically smok brown; veins light and dark brown; appendix apically, very wide. Thorax and abdome ventrally, yellow. Male genitalia as in Fig. 30, K.

Type Location—British Museum.

Type Locality—Mundaring, Western Australia.

Tartessus iambe Kirkaldy

(Fig. 30, S)

Tartessus iambe Kirkaldy, 1907 Bull.Hawaii Sug.Ass.Exp.Sta. 3: 46.

Tartessus ianeira Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 48. (syn.nov.).

Tartessus mackerrasi Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 54 (syn.nov.).

Length, ♂, ♀, 6-7 mm. General coloration brown. Face of head black, with pal markings above and below the antennae; apex of head pale brown. Crown of head slightl longer against the eyes than in the centre, brown. Pronotum, scutellum and tegmen pal brown; veins in part, or entirely, darker than the rest of the tegmen. Thorax and abdomen ventral surface, black. Male genitalia as in Fig. 30, S.

Type location—H.S.P.A., Honolulu.

Type Locality—Mittagong, New South Wales.

Known distribution elsewhere—Cabramatta, Casula (New South Wales).

Tartessus ianassa Kirkaldy

(Fig. 30, M)

Tartessus ianassa Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 47.

Length, ♂, 8, ♀, 9-9·5 mm. General coloration, mottled brown. Head, pronotum and scutellum mottled with yellowish-white, pale yellowish-brown and brownish. Crown of head consisting of the vertex only, slightly longest against eyes; hind margin ridged. Eyes longer than half total width of crown. Pronotum almost flat. Scutellum slightly raised posteriorly. Tegmen hyaline yellowish-brown, sometimes with irregular pale areas; veins dark brown with numerous pale oval markings. Male genitalia as in Fig. 30, M.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Known distribution elsewhere—Salisbury, Tweed River (New South Wales); Bunya Mountains (Queensland).

Tartessus ianthe Kirkaldy

(Fig. 30, Q)

artessus ianthe Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 47.

Length, ♂, ♀, 9-11 mm. General coloration, pale brown. Face of head pale hreous with a mottled scribbled pattern on the fronto-clypeus and vertex. Crown widest ainst the eyes which are equal to half the width of the crown; ocelli not visible from ove. Pronotum and scutellum pale brown with an even pattern of greyish oval markings. onotum sloping laterally. Tegmen pale hyaline brown, veins pale brown. Male genitalia in Fig. 30, Q.

ype Location—H.S.P.A., Honolulu.

ype Locality—Cairns, Queensland.

nown distribution elsewhere—Claremont, Brisbane (Queensland).

Tartessus iokaste Kirkaldy

artessus iokaste Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 48.

artessus pallidus Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 54 (syn.nov.).

Length, ♂, 6·5; ♀, 8 mm. Pale sordid yellowish-brown, sometimes obscurely ffused with green and sanguineous. Crown of head longer adjacent to the eyes than in ntre; ocelli visible from above. Pronotum sometimes obscurely spotted. Tegmen iformly dark hyaline ochreous; veins of tegmen sometimes dark fuscous, sometimes bferrugineous.

ype Location—H.S.P.A., Honolulu.

ype Locality—Cairns, Queensland.

nown distribution elsewhere—Sydney (New South Wales); Brisbane (Queensland).

Tartessus iphis Kirkaldy

(Fig. 30, G)

artessus iphis Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 45.

Length, ♂, 7; ♀, 6-7·5 mm. General coloration pale brown; thorax, bright orange. ace of head, ante-clypeus and lora black; maxillary plates, black, narrowly bordered with ellow externally; post-clypeus black, narrowly bordered with yellow, or, in part, yellowish- d and fuscous. Eyes greater in length than half width of crown. Crown very slightly ider against eyes than in centre, pale yellowish-white; ocelli marginal. Pronotum bright range. Scutellum orange, laterally and apically, pale yellowish-white. Tegmen pale yaline brown with an indistinct, and broken, transverse whitish fascia extending from costal argin to apex of clavus; apical cells in part, and appendix, smoky brown; veins light and ark brown.

ype Location—H.S.P.A., Honolulu.

ype Locality—Nelson, North Queensland.

nown distribution elsewhere—Townsville (Queensland).

Tartessus issa Kirkaldy

Tartessus issa Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 45.

Length, ♂, 6, ♀, 8-8·5 mm. General coloration evenly pale brown; thorax sometimes yellowish. Head pale yellowish. Crown well-defined, slightly longer against the eyes; ocelli visible from above. Pronotum and scutellum pale yellow, or pale yellowish brown. Tegmen pale hyaline brown; veins brown.

Type Location—H.S.P.A., Honolulu.

Type Locality—Nelson, North Queensland.

Known distribution elsewhere—Dunk Island, Cunnamulla (Queensland).

Tartessus occidentalis Jacobi

Tartessus occidentalis Jacobi, 1909, Faun.S.W.Aust., Michaelson u. Hartmeyer, 12: 342.

Length, ♀, 5·5 mm. General coloration dirty yellow. Pronotum anteriorly with 2 brown spots. Scutellum with large brown markings laterally. Tegmen hyaline, veins dark brown; inner margin between scutellum and apex of clavus, black.

Type Location—Unknown.

Type Locality—Dirk Hartog Island, Western Australia.

Tartessus pulchellus Spanberg

(Figs 5, K; 30, F)

Tartessus pulchellus Spanberg, 1878, Öfvers.Vetensk.Akad.Förh.Stockh. 34 (9): 10.

Tartessus pulchellus Spanberg, Linnavuori, 1956, Ann.Ent.Fenn. 22 (4): 178.

Tartessus itonias Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 44 (syn.nov.).

Length, ♂, 8·7-10 mm; ♀, 9-10 mm. General coloration, light brown. Crown well defined, narrowly produced; of even length throughout, ocelli visible from above. Tegmen pale hyaline brown with 2 transverse hyaline white fasciae, the anterior one extending from the costal to the anal border, the distal one not reaching as far as the anal border; apical cells with hyaline white areas and 2 dark brown oval markings between R and the costal margin, one close to where M diverges from R, the other near the junction of R and Rs.

Type Location—Natural History Museum, Stockholm.

Type Locality—Cape York, North Australia.

Known distribution elsewhere—Claudie River (North Queensland).

Tartessus latus Evans

(Fig. 30, P)

Tartessus latus, Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 156.

Length, ♂, 6 mm. General coloration brown. Face of head brown; fronto-clypeus darker in colour than the remainder. Crown brown, longer against eyes than in centre, rugose. Ocelli not visible from above. Pronotum pale brown. Scutellum dark brown

with darker muscle impressions. Tegmen pale hyaline brown; veins brown. Ventral surface of thorax and abdomen, and legs, brown. Male genitalia as in Fig. 30, P.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Tartessus mundarensis Evans

(Fig. 30, L)

Tartessus mundarensis Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 155.

Length, ♂, 5 mm. General coloration brown. Face of head pale yellowish-brown; fronto-clypeus lightly suffused with brown, sutures brown. Crown of even length; frons narrowly yellow, remainder pale whitish-brown, ocelli visible from above. Tegmen pale hyaline brown, apically smoky-brown; veins dark brown. Thorax and abdomen, ventrally black; legs yellow; bases of spines on hind tibia, black. Male genitalia as in Fig. 30, L.

Type Location—British Museum.

Type Locality—Mundaring, Western Australia.

Tartessus rubrivenosus Evans

(Fig. 30, O)

Tartessus rubrivenosus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 156.

Length, ♂, 6 mm. General coloration apricot brown. Face of head, ante-clypeus, lora and maxillary plates, brown, sparsely mottled with black; fronto-clypeus largely black, muscle impressions laterally brown; vertex brown, densely mottled with black. Crown rugose, of even length, pale brown; frons visible as a narrow border; ocelli not visible from above. Pronotum, antero-laterally smooth, yellowish-brown; medially greyish-brown, transversely striated. Scutellum marked with a pattern of light and dark brown. Tegmen hyaline brown, apical cells partly suffused with smoky-brown; veins pink with black bars. Male genitalia as in Fig. 30, O.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Tartessus rugosus Evans

(Fig. 30, T)

Tartessus rugosus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 156.

Length, ♂, 7·5 mm. General coloration, brown. Face of head, pale brownish-yellow; muscle impressions on fronto-clypeus, brown; frons and vertex rugose mottled with pale and dark brown. Crown slightly longer against the eyes than in the centre, pitted with light and dark brown markings; ocelli not visible from above. Pronotum and scutellum pale brown with dark brown markings. Tegmen pale hyaline brown; veins dark brown. Male genitalia as in Fig. 30, T.

Type Location—British Museum.

Type Locality—Yanchep, Western Australia.

Tartessus sahlbergii Signoret

Tartessus sahlbergii Signoret, 1880, Ann.Soc.Ent.Fr. 5 (4): 351.

Length, ♀, 7-8 mm. General coloration bronzy brown. Post-clypeus somewhat swollen.

Type Location—Natural History Museum, Vienna.

Type Locality—" Australia ".

(Although the Type, a ♀, of this species has been seen, examination did not yield sufficient information to enable it to be correlated with ♂ specimens).

Tartessus spinosus Evans

Tartessus spinosus Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 55.

Length, ♂, 6·5, ♀, 7·2 mm. General coloration, brown. Face of head, ante-clypeus, maxillary plates and lora pale greyish, or, yellowish-brown; frons and vertex rugose, brownish-yellow mottled with brown; transverse muscle impressions brown. Frons wider than post-clypeus. Crown of even length throughout; ocelli not visible from above. Pronotum antero-laterally pale brownish with dark brown markings; remainder grey, transversely striated with brown. Scutellum pale yellowish-brown with a few dark brown markings. Tegmen pale hyaline brownish-yellow; venation in part reticulate; veins brown with minute spines. The illustrations of the male genitalia accompanying the original description is misleading as it shows only the basal part of a broken aedeagus.

Type Location—Australian Museum.

Type Locality—Carnac Island, Western Australia.

Collected on—Anthocerus littorea.

Tartessus parvus sp.nov.

(Fig. 30, H)

Length, ♂, 4 mm. General coloration pale yellowish-brown. Face of head broadly triangular; ante-clypeus and post-clypeus somewhat darker in colour than the rest of the head. Crown equal in length with eyes on each side. Tegmen vitreous. Thorax and abdomen, ventral surface, yellowish-brown with black markings. Male genitalia as in Figure 30, H.

Holotype ♂ from the Capel district, 18 miles south of Bunbury, Western Australia (coll. H. Snell, 7/1/57), in the Australian Museum.

Tartessella Evans

Tartessella Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 56.

The face of the head is wider than long and the labium terminates between the fore coxae. The ante-clypeus is widest in the centre and the antennal ledges, which are curved, or transverse, are nearer to the hind than the fore margin of the eyes. The epistomal suture is discernible and curved posteriorly. The arms of the epicranial suture are transverse and situated on the anterior margin of the head. The ocelli are marginal. The crown is well defined and slightly longer against the eyes. The venation of the tegmina may be, in part,

reticulate, in particular there may be several additional cross-veins between M and Cul, which are widely separated. The appendix narrowly continues around the apices of the tegmina. The fore and middle tibiae are armed with numerous fine spines.

Type species—*Tartessella attenuata* Evans.

Tartessella attenuata Evans

(Fig. 31, G)

Tartessella attenuata Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 56.

Length, ♂, 11 mm. General coloration pale brown. Face of head pale brown, sometimes with obscure brown markings; vertex mottled with dark brown. Pronotum dull greyish-brown with indistinct whitish markings. Scutellum brown. Tegmen pale hyaline brown; venation complete and usually lacking accessory cross veins. Male genitalia as in Fig. 31, G.

Type Location—South Australian Museum.

Type Locality—Mullewa, Western Australia.

Known distribution elsewhere—Broome, Magnet (Western Australia); Mt Olga (Northern Territory).

Tartessella incompleta Evans

(Fig. 31, D1-3)

Tartessella incompleta Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 57.

Length, ♂, 8-9 mm; ♀, 11·5-13 mm. Face of head pale biscuit, sometimes mottled with brown, or entirely brown; frons, vertex and crown, rugose, yellowish, mottled with brown. Pronotum yellowish-brown, or greyish, mottled with brown, sometimes palest posterior to the eyes. Scutellum yellowish; muscle impressions brown. Tegmen vitreous; veins brown; venation reticulate to a varying degree; some of the accessory cross-veins incomplete.

Type Location—South Australian Museum.

Type Locality—Cannamilla, Queensland.

Known distribution elsewhere—Carnarvon, Maryborough (Queensland); Mt Hotham (Victoria); Wirramina (South Australia); Dedari, Lake Violet (Western Australia).

Tartessella campbelli Evans

(Fig. 31, E)

Tartessella campbelli Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 57.

Length, ♂, 8 mm. General coloration, apricot yellow. Face of head approximately as long as wide, yellow; muscle impressions on fronto-clypeus orange, vertex apricot yellow. Crown and thorax yellow. Tegmen hyaline yellow; veins yellow; appendix narrow.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Newcastle Water, North Australia.

Known distribution elsewhere—Mt Olga (Northern Territory).

Tartessoides Evans

Tartessoides Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 55.

The head is longer than wide and on the face the labium extends to between the hind coxae. The ante-clypeus is long and narrow and the lora large. The fronto-clypeus is confined to the face and the ocelli also are facial in position. The antennal ledges, which are obscure and rounded, are close to the hind margins of the face and the frontal sutures are parallel with each other. The sides of the fronto-clypeus posteriorly are depressed. The epicranial suture may be obscure or well defined. The crown is sharply separated from the face and slightly longer against the eyes than in the middle. The pronotum is depressed anteriorly and laterally and the scutellum slightly raised or humped posteriorly. The venation of the tegmina, which is complete, is somewhat reticulate in the claval area and the appendices continue widely around the apices of the tegmina. The fore and middle femora, and tibiae, have numerous fine spines.

Type species—*Tartessoides griseus* Evans.

Tartessoides griseus Evans

(Fig. 31, C1-3)

Tartessoides griseus Evans, 1937, Pap.Roy.Soc.Tasm. 1936: 56.

Length, ♀, 10 mm. Head grey mottled with light and dark brown. Pronotum grey with very dark brown markings. Scutellum grey barred with black and with a few round black spots. Tegmen hyaline-grey; several cells with irregularly shaped dark brown and black areas; veins very dark brown. Male genitalia as in Fig. 31, C2.

Type Location—South Australian Museum.

Type Locality—Between Everard Ranges (South Australia) and Warburton Ranges (Western Australia).

Tartessoides brunneus sp.nov.

(Fig. 31, F)

Length, ♀, 8·4 mm. General coloration brown. Face of head pale brown faintly spotted with brown. Crown, pale brown pitted with dark brown. Pronotum pale brownish-grey with scattered brown punctures medially and with 3 longitudinal stripes on each side; innermost stripe, which continues onto the scutellum, dark chocolate brown, followed by a whitish stripe spotted with brown punctures, and a small external brown area. Scutellum whitish-grey with sparse brown punctures, laterally dark brown. Tegmen, and veins, hyaline chestnut-brown, except on each side of the pronotum and the appendix, postero-proximally, which is whitish.

Holotype ♀, from 130 miles south east of Broome, north-western Australia in the collection of the National Museum of Victoria ("donated" by H. J. Cudmore, 19/9/24).

Tartessoides brunneus differs from the type species in its distinctive coloration.

Stenotartessus Evans

Euprora Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 9 (preoccupied).

Stenotartessus Evans, 1947, Trans.R.Ent.Soc.Lond. 98: 207 (nom.nov.).

Newmaniana Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 152 (syn.nov.).

Newmaniana Evans, 1947, Trans.Roy.Ent.Soc.Lond. 98: 207.

Insects uniformly green in colour, apart from the anterior margin of the head, which may be pink. The head, anyhow of female insects, is broadly, or narrowly, anteriorly produced. The ante-clypeus which is slightly convex may be widest in the centre, or else widest anteriorly. The antennal ledges are close to the hind margin of the eyes. The crown of the head, if not anteriorly produced, is longer in the centre than against the eyes, and the ocelli, which may be visible from above, are marginal in position. The pronotum is arched anteriorly and extends medially in front of the eyes. The tegmina are long and apically narrow.

Type species—*Stenotartessus mullensis* Evans.

Stenotartessus mullensis Evans

(Fig. 31, A1-5)

Euprora mullensis Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 10.

Stenotartessus mullensis (Evans), 1947, Trans.R.Ent.Soc.Lond. 98: 207.

Newmaniana viridis Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 152 (syn.nov.).

Length, ♂, 7 mm, of crown of head, 6·5 mm; ♀, 9·8-13 mm, of crown of head 1·2-3·5 mm. General coloration green; anterior margin of head and apex of ovipositor, sometimes pinkish. Male genitalia as in Fig. 31, A5.

Type Location—South Australian Muscum.

Type Locality—Mullewa, Western Australia.

Known distribution elsewhere—Dongarra, Yanchep, Dedari (Western Australia); Kiata (Victoria).

Collected on—Acacia.

The holotype of *S. mullensis* is a ♀ with a long, narrowly produced head and the holotype of *Newmania viridis*, a ♂ with the crown of the head only slightly longer in the centre than against the eyes. When, in 1963, specimens of short-headed ♂♂ and long headed ♀♀ were taken togcther at Kiata, in Victoria, it was realised that the genus *Newmania* Evans had been based on the sexually dimorphic ♂ of a species previously ascribed to another genus. Although none of the ♀♀ taken at Kiata had such long heads as those of some, but not of all, of the specimens collected in Western Australia, it seems preferable for the time being to assume that length of head is a variable characteristic lacking specific significance. The occurrence in western Victoria of a leafhopper otherwise apparently restricted to Western Australia, is of interest. Other examples of a similar pattern of distribution are furnished by *Pognoscopus myrmex*, *Lasioscopus acmaeops*, *Cephalelus marginatus* and *Ledrella brunnea*.

Stenotartessus queenslandensis sp.nov.

(Fig. 31, B1-5)

Length, ♂, 10, ♀, 12 mm. General coloration pale grecn. Face of head pinkish; margin of head, between the eyes, dark brown margined with red. Legs pinkish, apex of ovipositor red. Male genitalia as in Fig. 31, B5.

Holotype ♂ and *Allotype* ♀ from Biloela, Queensland (coll. A. R. Bird) in the Queensland Museum.

S. queenslandensis differs from the type species, *S. mullensis*, in being a considerably broader insect and in having the hcad broadly triangularly produced in both sexes, instead of being narrowly produced in the female only.

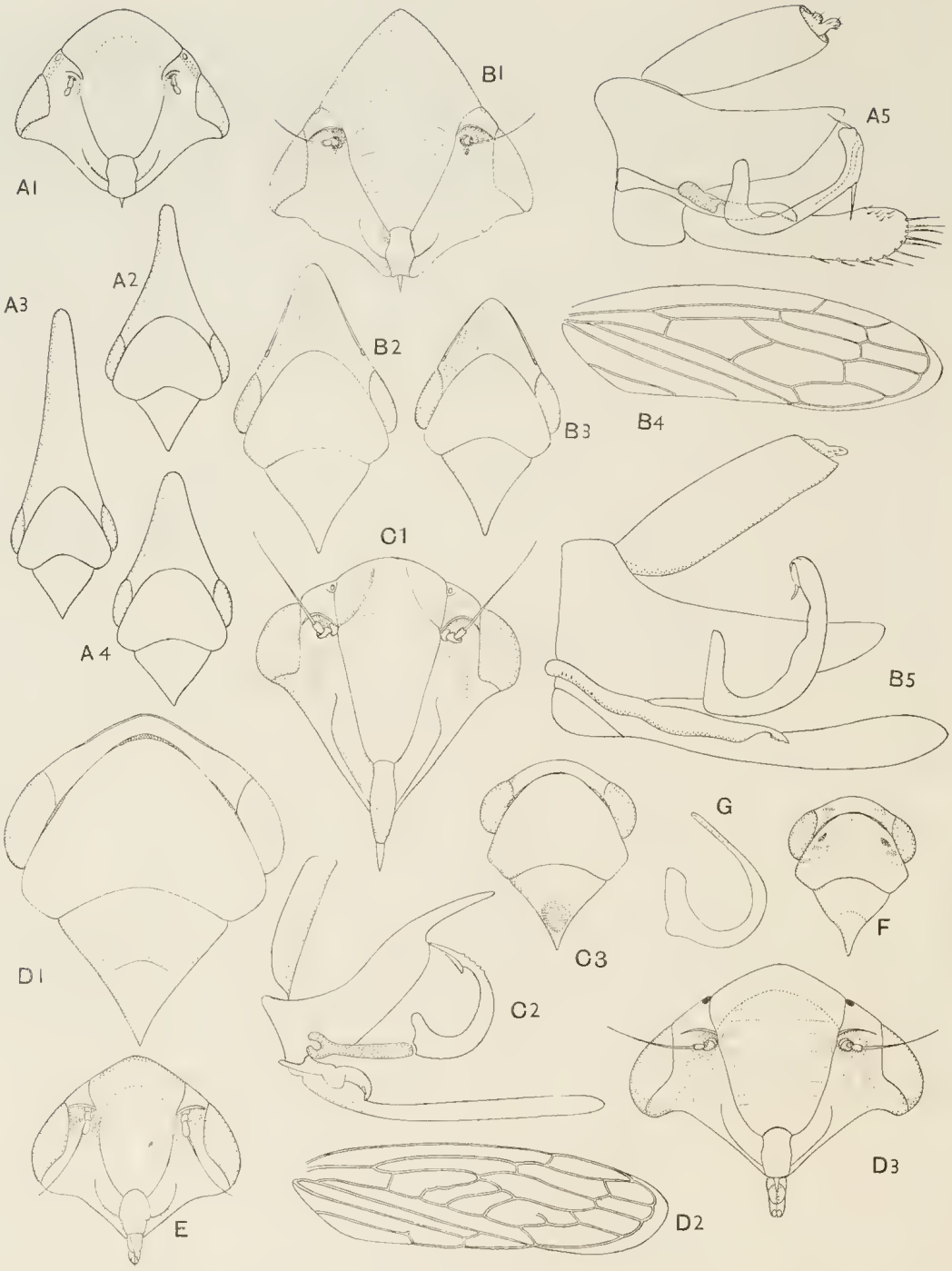


Fig. 31: A1, *Stenotartessus mullensis*, ♂, face of head; A2-4, *S. mullensis* ♀, crown of head and thorax; A5, *S. mullensis*, male genitalia; B1, *Stenotartessus queenslandensis*, face of head; B2, 3, *S. queenslandensis*, head and thorax; B4, *S. queenslandensis*, tegmen; B5, *S. queenslandensis*, male genitalia; C1, *Tartessoides grisseus*, face of head; C2, *T. griseus*, male genitalia; C3, *T. griseus*, head and pronotum; D1, *Tartessella incompleta*, head and thorax; D2, *T. incompleta*, tegmen; D3, *T. incompleta*, face of head; E, *Tartessella campbelli*, face of head; F, *Tartessoides brunneus*, head and thorax; G, *Tartessella attenuata*, aedeagus.

Jassinae

In addition to the 3 tribes listed in the Key which follows, four other distinctive groups of leafhoppers were formerly included in this sub-family (Evans, 1947a). As other authors (c.g. Linnavuori, 1959) are of the opinion that some, or all, of these last-named groups lack close affinity with the Jassinae, the two which have representation in Australia, the Penthimiinae and Selenocephalini, have been removed from this subfamily.

Key to the Tribes of the Jassinae represented in Australia

1. Face of head, anterior to the antennal ledges, at right angles to the rest of the head; the latter forms a continuous curved surface with the declivous pronotum..... ..... **Treenadini**

   Not as above 3

2. Crown flattened, considerably wider in the centre than at the sides; ocelli marginal ..... **Reuplemmelini**

   Crown, either equal in length with the eyes, or slightly wider in the centre, not flattened; ocelli on the face of the head..... **Jassini**

Jassini

This tribe comprises mostly green, brown and occasionally, pinkish insects which have an approximately semi-circular fronto-clypeus, facial ocelli and a narrow crown. Their more specialised features are mentioned in the generic description given below. The Jassini are of universal distribution, and since several species form part of the faunas of oceanic islands, it is probable that some species are not restricted to particular food plants.

Batrachomorphus Lewis

Batrachomorphus Lewis, 1834, Trans.Ent.Soc.Lond. 11: 47.

Eurinoscopus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 346.

Batrachomorphus Lewis, Linnavuori, 1957, Ann.Ent.Fenn. 23 (3): 145.

This cosmopolitan genus comprises a large number of species which are difficult to separate because of the lack of well-defined differentiating characters. Doubtless a critical study would reveal considerable synonymy and until this is made identification of named species must depend on comparisons with type specimens.

The face of the head, which is wider than long, is usually convex. The ante-clypeus and maxillary plates are wide and the former is parallel-sided. The fronto-clypeus, when completely defined, is circular in outline, and the ocelli, which are facial in position, lie close to its hind margin. The antennal ledges, which are well-defined, are transverse. The crown of the head is usually equal in length with the adjacent sides of the eyes. The anterior and posterior margins of the pronotum are parallel with each other and the propleurae widely separate the eyes from the bases of the tegmina. The tegmina, which may be punctate, narrow apically, and the posterior apical cell forms part of the overfold. In the wings, Rs and M 1 + 2 form a single vein apically. The hind tibiae are curved and flattened and heavily armed.

Type species—*Batrachomorphus irroratus* Lewis (England).

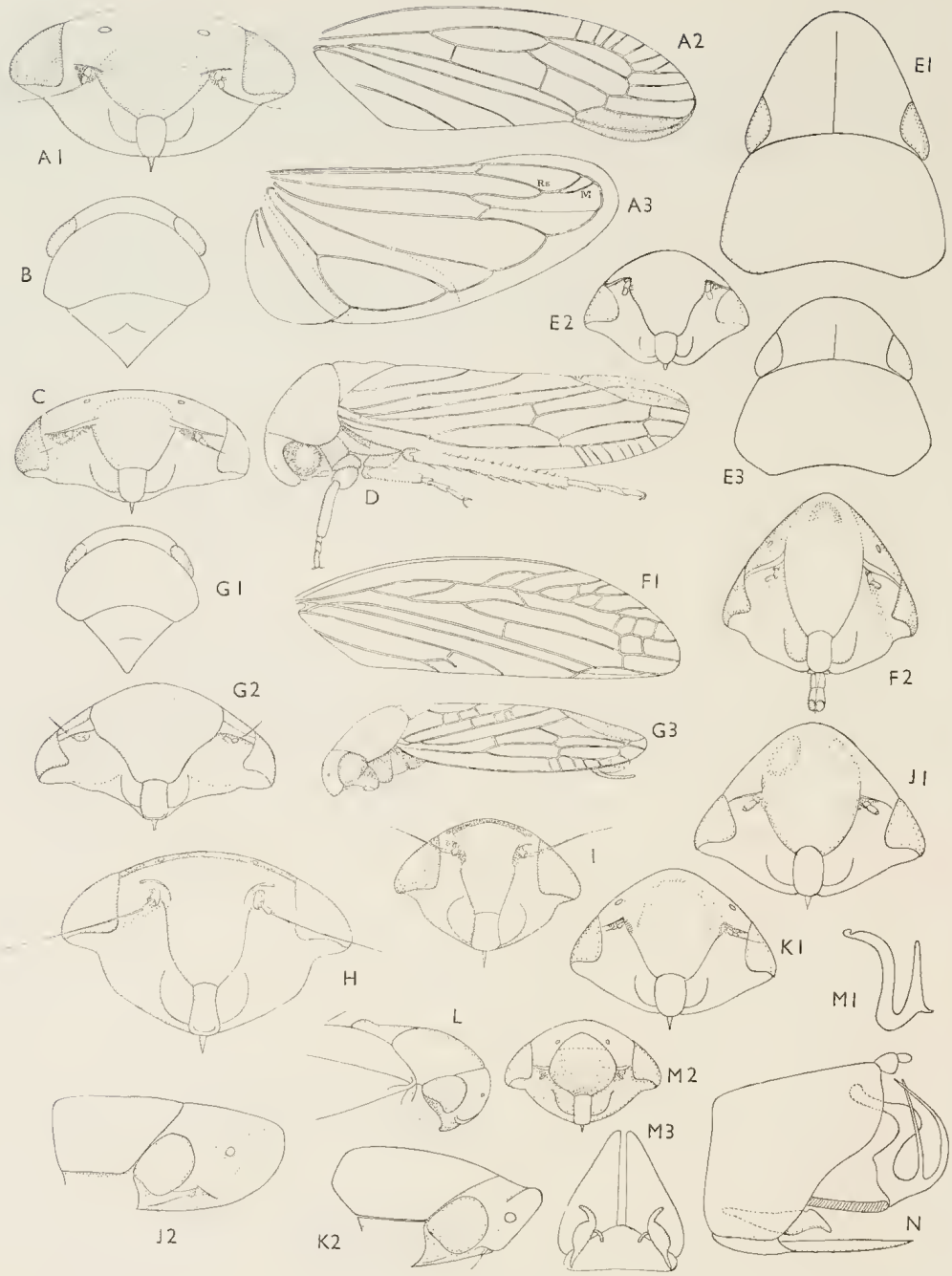


Fig. 32: A1, *Batrachomorphus pelamys*, head; A2, *B. pelamys*, tegmen; A3, *B. pelamys*, wing; B, *Batrachomorphus elegans*, head and thorax; C, *Trocnada minuta*, head; D, *Trocnada dorsigera;* E1, *Reuplemmeles hobartensis*, ♀, head and thorax; E2, *R. hobartensis*, ♂, face of head; E3, *R. hobartensis*, ♂, head and thorax; F1, *Aloplemmeles gearyi*, tegmen; F2, *A. gearyi*, head; G1, *Ectopiocephalus australis*, head and thorax; G2, *E. australis*, head; G3, *E. australis;* H, *Drabescus heroni*, head; I, *Carvaka fulvida*, head; J1, *Aloplemmeles simplex*, head; J2, *A. simplex*, head and thorax in profile; K1, *Aloplemmeles colorata*, head; K2, *A. colorata*, head and thorax in profile; L, *Chinaella argentata*, head and thorax in profile; M1, *Chinaella shephardi*, aedeagus; M2, *C. shephardi*, head; M3, *C. shephardi*, subgenital plates and paramere; N, *Chinaella cudmorei*, male genitalia.

Batrachomorphus pallidus (Evans) (comb.nov.)

Eurinoscopus pallidus Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 75.

Length, ♀, 4·5 mm. General coloration pale brownish-yellow.

Type Location—Australian Museum.

Type Locality—Hobart, Tasmania.

Batrachomorphus pelamys (Kirkaldy) (comb.nov.)

(Fig. 32, A1-3)

Eurinoscopus pelamys Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 349.

Eurinoscopus citrinus Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 76 (syn.nov.).

Length, ♀, 6·1-6·8 mm. Face of head pale lemon yellow, hind margin of fronto-clypeus distinct. Pronotum and scutellum concolorous with the head. Tegmen yellowish-hyaline, rugose, with a few brown spots on the veins and no additional cross-veins.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Known distribution elsewhere—Canberra (A.C.T.); Canungra (Queensland).

Batrachomorphus dryas (Kirkaldy) (comb.nov.)

Eurinoscopus dryas Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 348.

Length, ♂, 4·8, ♀, 5·1 mm. "Pale testaceous, corium lightly granulated with brown. In the ♂, plates elongate, hemispherical, not as long as the pygophores. Last abdominal segment of ♀ obtusangularly emarginate, laterally produced acuminately."

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Batrachomorphus elegans (Evans) (comb.nov.)

(Figs 4D; 32, B)

Eurinoscopus elegans Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 76.

Length, ♀, 5·5 mm. Head pale chestnut-brown; dark brown between the ocelli. Pronotum pale brownish-yellow with orange-brown markings. Scutellum brownish-yellow; muscle impressions orange brown. Tegmen, hyaline yellowish-green.

Type Location—Australian Museum.

Type Locality—Hobart, Tasmania.

Known distribution elsewhere—Black Rock (Victoria).

Batrachomorphus lentiginosus (Kirkaldy) (comb.nov.)

Eurinoscopus lengitinosus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 347.

Length, ♂, ♀, 4·8 mm. Tegmen pale blotchy hyaline-brown with numerous evenly-spaced, brown spots.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Known distribution elsewhere—Canberra (A.C.T.); Canungra (Queensland).

Batrachomorphus pelias (Kirkaldy) (comb.nov.)

Eurinoscopus pelias Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 348.

Length, ♂, 4·2, ♀, 6 mm. General coloration, greenish. Crown of head longer in the centre.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Batrachomorphus molestia (Kirkaldy) (comb.nov.)

Eurinoscopus molestia Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 348.

Length, ♀, 5 mm. "Vertex (crown) distinctly, though obtusely angulately rotundate in front; in the middle more than one-half longer than at eyes which extend laterally very slightly beyond the pronotum."

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Batrachomorphus punctatus (Evans) (comb.nov.)

Eurinoscopus punctatus Evans, 1941, Proc.Roy.Soc.Queensland 52: 10.

Length, ♂, 4·8 mm. Tegmen pale hyaline-brown, veins and margin of tegmen green; veins and cross-veins bordered with small brown spots.

Type Location—Queensland Museum.

Type Locality—Darling Downs, Queensland.

Batrachomorphus sontiates (Kirkaldy) (comb.nov.)

Eurinoscopus sontiates Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 347.

Eurinoscopus soboles Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 348 (syn.nov.).

Length, ♂, 4·8-5·2 mm; ♀, 6-8 mm. Tegmen, pale yellowish-brown with evenly distributed small brown spots.

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Known distribution elsewhere—Brisbane (Queensland).

Batrachomorphus translucidus (Evans) (comb.nov.)

Eurinoscopus translucidus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 145.

Length, ♀, 4 mm. Head yellow, frontal and epicranial sutures, obscure. Pronotum and scutellum concolorous with the head. Tegmen opaque, pale green with ill-defined yellow and brown areas; veins green, apex of tegmen, pale hyaline-brown.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Batrachomorphus viridipes (Distant) (comb.nov.)

Bythoscopus viridipes Distant, 1908, Ann.Soc.Ent.Belg. 52: 99.

Length, ♀, 6·5 mm. General coloration pale brownish-yellow (possibly green in life). Crown of head of even length.

Type Location—British Museum.

Type Locality—" Queensland ".

Batrachomorphus viridis (Evans) (comb.nov.)

Eurinoscopus viridis Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 75.

Length, ♂, 5 mm. General coloration, emerald green. Tegmen hyaline yellowish-green.

Type Location—Australian Museum.

Type Locality—Adelaide, South Australia.

Known distribution elsewhere—Canberra (A.C.T.).

Batrachomorphus adventitiosus sp.nov.

Length, ♂, 3-4 mm; ♀, 4-5 mm. General coloration even pale green or (in dried specimens) pale brownish-yellow. Crown of head of even length with the eyes, or, very slightly longer in the centre.

Holotype ♂ and *Allotype* ♀ from Whangerei, New Zealand (coll. J.G. Myers 12/21) in the collection of the D.S.I.R., Nelson, New Zealand. Other locality records: Paika, 1/50; Foxton, 1/51; Great Island, Three Kings Islands, 1/51.

Representatives of this genus are frequent components of the faunas of oceanic islands; hence the above species may well have reached New Zealand by adventitious means.

Trocnadini

This tribe, which is of undoubted derivation from the Jassini, was established to segregate a very distinctive endemic genus of Australian leafhoppers, of which the principal distinguishing feature is the lack of a crown to the head, the steeply declivous pronotum being continuous with the head as far as the antennal ledges.

Trocnada Walker

Trocnada Walker, 1858, Ins.Saund.Homopt. 103.

Abelterus Stål, 1865, Öfvers.Vetensk.Akad.Förh.Stockh. 22: 157.

On the face of the head, which is wider than long, the labium does not extend as far as the middle coxae. The ante-clypeus lies below the level of the lora, which slope towards it. The fronto-clypeus widens progressively towards where it meets the antennal ledges; these are transverse and prominent and extend as far as the eyes on each side. The head posterior to the antennal ledges, is at right angles to the anterior part. The ocelli, which are directed forwards, are nearer to the eyes than to each other. There is a narrow crown visible from above, which is not differentiated from the vertical vertex. The pronotum is declivous, wide laterally, and widens posteriorly. The tegmina are narrow apically and the appendix is wide. In the wings, Rs and M 1 + 2, are fused apically.

Type species—*Trocnada dorsigera* Walker.

Trocnada dorsigera Walker

(Fig. 32, D)

Trocnada dorsigera Walker, 1858, Ins.Saund.Homopt. 104.

Abelterus incarnatus Stål, 1865, Öfvers.Vetensk.Akad.Förh.Stockh. 22: 158.

Trocnada gigantea Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 78 (syn.nov.).

Length, ♂, 7·2, ♀, 8·2-10 mm. General coloration pink, sometimes finely and sparsely mottled with dark brown or black. Face of head pale biscuit colour, suffused, especially posteriorly, with pink.

Type Location—British Museum.

Type Locality—Sydney, New South Wales.

Known distribution elsewhere—Karoonda (South Australia); Pentland (Queensland); Moonbar, 3,500 ft, Yanco, Mullaley (New South Wales); Canberra (A.C.T.); Perth (Western Australia).

Trocnada alpina Evans

Trocnada alpina Evans, 1939, Trans.Roy.Soc.S.Aust. 63: 47.

Length, ♂, 6·2-7 mm; ♀, 8 mm. Face of head, maxillary plates and lora pale grey; fronto-clypeus pale yellow. Crown pale yellow with red and black spots. Pronotum yellowish-grey with black and pink spots. Scutellum yellow with black markings. Tegmen pinkish hyaline; veins pale brown bordered with black spots. Hind tibia pale yellow, external surface dark brown; base of spines black.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Alpine Creek, Mt Kosciusko.

Known distribution elsewhere—Kiata, Timbertop (Victoria).

Trocnada minuta Evans

(Fig. 32, C)

Trocnada minuta Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 78.

Length, ♂, 4·5, ♀, 6 mm. Head ochreous. Pronotum reddish-brown sometime with small red spots. Scutellum dark brown. Tegmen hyaline brown; veins pinkish and with a round black spot on the sides of the pronotum anteriorly.

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Canberra, A.C.T.

Known distribution elsewhere—Brisbane (Queensland); Darwin (Northern Territory).

Reuplemmelini

This tribe has formerly been known as the Reuterellini (Evans, 1947a). It comprises 2 genera, which like *Trocnada* (Trocnadini) have undoubtedly been derived from the Jassini. Species in both genera resemble those in the genus *Batrachomorphus* in all significant features, with the exception of ones associated with the shape of the head and the position of the ocelli. In the Jassini, the face of the head is convex, there is a small narrow crown and the ocelli are ventral in position. In the Reuplemmelini the face of the head is flattened, the crown is extensive, and the ocelli are situated on the broad lateral margins of the head.

Reuplemmeles gen.nov.

On the face of the head the labium extends to between the fore coxae. The face is flattened, and in the ♂ is wider than long and longer than wide in the ♀. The ante-clypeus is parallel-sided and the lora do not reach as far as the anterior margins of the maxillary plates. The fronto-clypeus is flat anteriorly and widens towards the antennal ledges. The antennal ledges are oblique and prominent. The crown of the head is spatulate and separated from the face by a narrow marginal rim. In the ♂, it is semi-circular in outline, and in the ♀, either half ovate and equal in length with the pronotum, or it may be longer than the pronotum. The ocelli are situated close to the anterior margin of the crown, adjacent, but not in contact, with the eyes. The pronotum is wide laterally and widens slightly posteriorly. The tegmina have normal venation and a "false" as well as a true appendix. In the wings Rs and M 1 + 2 are apically fused.

Type species—*Reuteriella hobartensis* Evans.

The leafhopper described below was formerly (Evans, 1938) identified as *Reuteriella flavescens* Signoret, and later as already mentioned a new tribe, the Reuterellini was created for its reception (Evans, 1947). As explained on page 136 *R. flavescens* actually belongs to the Hecalini hence a new genus is needed to contain the species formerly, and incorrectly, ascribed to the genus *Reuteriella* Signoret. Attention has previously been drawn to the manner in which this genus resembles *Platyjassus* Evans, of which the comprised species are confined to Madagascar (Evans, 1953). Both genera represent similar, though independent, evolutionary developments from species comprised in the genus *Batrachomorphus*.

Reuplemmeles hobartensis (Evans) (comb.nov.)

(Fig. 32, E1-3)

Reuteriella hobartensis Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 11.

Length, ♂, 5·8-6·5 mm; ♀, 8-9·5 mm. ♀ pale brownish-yellow; appendix and false appendix of tegmen sometimes smoky. ♂ reddish, or yellowish-brown; veins of

tegmen sometimes red or crown and pronotum largely crimson; scutellum yellowish-red, laterally black. Tegmen costal third hyaline green, remainder black, veins red.

Type Location—Australian Museum.

Type Locality—Hobart, Tasmania.

Known distribution elsewhere—South Brighton, Mt Timbertop (Victoria); Canberra (A.C.T.); Caloundra, Carnarvon Range (Queensland); Perth (Western Australia).

Aloplemmeles gen.nov.

The face of the head is flattened as far as the antennal ledges and the labium terminates between the fore coxae. The ante-clypeus is parallel-sided and curved posteriorly and the lora do not extend as far as the margins of the maxillary plates. The antennal ledges are well defined and slightly oblique. The occlli are situated on the thickened sides of the head. The crown is extensive and flattened and larger in the centre than against the eyes. The pronotum is wide laterally. The tegmina are long and narrow and the cell enclosed by the arms of Cu 1 lacks pigmentation. The venation may be normal, or additional cross veins may be developed, and there may be numerous additional costal veinlets. There may also be numerous small raiscd spots bearing minute spines, on, or close to, the veins. In the wing Rs and M 1 + 2 are apically fused. There is some degree of sexual dimorphism.

Type species—*Aloplemmeles gearyi* sp.nov.

Aloplemmeles differs from *Reuplemmeles* in the shapc of the head, which is marginally irregularly thickened in the former genus, and flattened in the lattcr.

Aloplemmeles gearyi sp.nov.

(Fig. 32, F1, F2)

Length, ♂, 7, ♀, 10 mm. Gcneral coloration pale green. Face of head as wide as long, flattened; fronto-clypeus posteriorly slightly depressed below level of vertex. Apex of head thicker in ♂ than in ♀; ocelli facing forward, close to but not in contact with the eyes. Crown approximately triangular, apically rounded; in ♂ slightly more than half length of pronotum; in ♀, almost as long as pronotum. Tegmen sometimes with a few secondary cross veins and always with additional costal veinlets. Minute spines on tegmen present in ♀ only.

Holotype ♂ and *Allotype* ♀ from Cunnamulla, Queensland (coll. N. Geary, 2/43) in the Australian Museum.

Aloplemmeles simplex sp.nov.

(Fig. 32, J1, J2)

Length, ♀, 9 mm. General coloration pale yellowish (probably green in life). Face of head wider than long, thickened posteriorly. Fronto-clypeus posteriorly, sloping steeply from the flattened anterior part; medially flattened and laterally with a basin-shaped depression on each side. Tegmen with normal venation; veins concolorous with rest of tegmen.

Holotype ♀, from Mullewa, Wcstern Australia (coll. F. May) in the South Australian Museum.

Aloplemmeles colorata sp.nov.

(Fig. 32, K1, K2)

Length, ♀, 8·8 mm. General coloration yellowish (possible green in life) suffused with pink. Face of head wider than long. Fronto-clypeus entirely flat, posteriorly overhung by the thickened vertex. Margin of head, pink surrounding the eyes with a brown stripe along the dorsal edge. Crown yellowish, partly suffused with pink; a pair of small dark brown markings midway between eyes and coronal suture. Coronal suture pink, extending almost as far as anterior margin of crown. Pronotum pinkish-brown with numerous small dark brown markings antero-laterally and a median pink stripe, which extends posteriorly onto the scutellum. Scutellum apically pink. Tegmen with normal venation, colourless-hyaline; veins brownish-yellow.

Holotype ♀ from Mt Serle, North Flinders Range (coll. Hale and Tindale) in the South Australian Museum.

Penthimiinae

This sub-family has representatives in all the principal geographical regions. Four of the described Australian genera are endemic, while two, *Vulturnus* Kirkaldy and *Neodartus* Melichar, which are represented also in the Oriental region and in Africa, are part of the late Indo-Malayan element of the eastern Australian fauna.

The head is variable in shape (Evans, 1947a); the pronotum is wide laterally and the tegmina, in most forms, overlap apically and have wide appendices.

Key to Genera of the Penthimiinae represented in Australia

1. Crown of head spatulate, approximately three times the length of the pronotum; ocelli on the crown ..... **Platyscopus** Evans
   Not as above 2
2. (1) Insects less than 5 mm in length 3
   Insects more than 5 mm in length ..... **Ectopiocephalus** Kirkaldy
3. (2) Crown spatulate, overhanging the face of the head 4
   Anterior margin of head blunt or rounded 6
4. (3) Part of crown anterior to the ocelli shorter than the part posterior to them 5
   Part of crown anterior to the ocelli longer than the part posterior to them ..... **Thaumatoscopus** Kirkaldy
5. (4) Face of head posteriorly convex ..... **Vulturnellus** gen.nov.
   Face of head posteriorly concave ..... **Vulturnus** Kirkaldy
6. (3) Face of head more or less at right angles to the declivous vertex; eyes widely separated from the bases of the tegmina by the propleurae .. **Neodartus** Melichar
   Head evenly rounded; eyes narrowly separated from the bases of the tegmina by the propleurae ..... **Chinaella** Evans

Ectopiocephalus Kirkaldy

Ectopiocephalus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 463.

The face of the head is flat and more than twice as wide as long and the labium terminates between the fore coxae. The fronto-clypeus widens progressively as far as the antennal ledges, which are prominent. The hind margin of the face is semi-circular in

outline and at right angles to the rest of the head, which lies in 2 planes that form a continuous curved surface. The ocelli are on the anterior margin of the crown adjacent to the complete, and distinct, curved epicranial suture, which coincides with the anterior border of the crown. The pronotum is wide laterally and wider posteriorly than anteriorly. The tegmina have wide appendices and numerous supernumary costal veinlets and the venation is reticulate to a varying degree.

Type species—*Ectopiocephalus vanduzei* Kirkaldy.

This genus differs from *Penthimia* Germar, of which it has formerly been regarded as a synonym, in being less squat in appearance, since the tegmina are not so steeply bent at the apex of the clavus. Also, in *Ectopiocephalus*, the distances between the eyes and the sides of the fronto-clypeus are approximately the same as between the hind margin of the head and the fronto-clypeus, while in *Penthimia* the former distance is approximately half the latter.

Ectopiocephalus australis (Walker) (comb.nov.)

(Fig. 32, G1-3)

Scaris australis Walker, 1858, List.Homopt.Brit.Mus.Supplement, 253.

Penthimia australis (Walker) Evans, 1937, Mem.Queensland Mus. 11: 150.

Ectopiocephalus vanduzei Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 464 (syn.nov.).

Penthimia reticulata Distant, 1908, Ann.Soc.Ent.Belg. 52: 108.

Length, ♂, 5-6 mm; ♀, 6-8 mm. General coloration, ♂, black; ♀, brownish or purplish-red. Apex of head in both sexes brownish-yellow.

Male; crown and thorax shining black, or black with red markings. Tegmen dark hyaline brown, the clavus sometimes, irregular areas in cells, and veins, broadly black.

Female; crown and pronotum sometimes very dark brown or purplish brown with, or without, irregular black markings.

Type Location—British Museum.

Type Locality—Moreton Bay, Queensland.

Known distribution elsewhere—Rockhampton, Indooropilly, Camooweal (Queensland); Nyngan, Mootwingie (New South Wales); Kiata (Victoria).

Chinaella Evans

Chinaella Evans, 1936, Pap.Roy.Soc.Tas. 1935: 76.

The head is evenly rounded, forming a single curved surface from the anterior to the posterior margin. The face is twice as wide as long, the labium terminates at the base of the middle coxae and the lora and ante-clypeus are in low relief. The post-clypeus widens as far as the antennae. The antennal ledges are transverse and prominent, and extend laterally as far as the eyes. Medially, they are linked with each other by a low ridge, marking the position of the epistomal suture. The ocelli, which face forward, are visible neither in facial nor in dorsal aspect, and are at an equal distance from the antennal ledges and the hind margin of the head. The epicranial suture is retained and the crown is of even length with the adjacent part of the eyes. The tegmina overlap considerably and have a wide true and a supplementary appendix.

Type species—*Chinaella argentata* Evans.

Chinaella argentata Evans

(Fig. 32, L)

hinaella argentata Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 77.

Length, ♀, 4·5 mm; width of head, 2 mm. Head cream, mottled with pale eddish-brown. Pronotum steeply declivous, golden yellow flecked with brown. Scutellum eddish yellow. Tegmen proximally brownish-yellow distally yellowish-white, with an verall reticulate brown pattern; veins brown. Ventral surface of thorax and legs, pale rown; of abdomen, white suffused with pale brown; genital segments, brown.

ype Location—South Australian Museum.

ype Locality—Everard Ranges, South Australia.

nown distribution elsewhere—Roper River (Northern Territory).

Chinaella shephardi Evans

(Fig. 32, M1-3)

hinaella shephardi Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 77.

Length, ♂, 4 mm; width of head, 1·8 mm. Face of head, fronto-clypeus and vertex eddish-brown mottled with yellow; ante-clypeus, lora and maxillary plates, black. Pronotum lightly declivous, reddish-brown. Scutellum yellowish-brown with dark brown markings. egmen reddish-brown with a white streak along the costal margin and a purplish-brown tripe along the claval suture; veins, apically, brown. Thorax and abdomen, ventral urface, brown. Male genitalia as in Fig. 32, M1, M3.

ype Location—South Australian Muscum.

ype Locality—Broken Hill, New South Wales.

nown distribution elsewhere—Musgrave Ranges (South Australia).

Chinaella cudmorei Evans

(Fig. 32, N)

hinaella cudmorei Evans, 1936, Pap.Roy.Soc.Tasm. 1935: 77.

Length, ♀, 4 mm; width of head, 1·5 mm. Face of head anteriorly, and fronto-lypeus, ochreous; vertex pale brownish-yellow. Pronotum, ochreous. Scutellum dark eddish-brown, apically pale brown. Tegmen hyaline mottled with pale brown; veins pale rown. Ventral surface of thorax and abdomen pale brown. Male genitalia as in Fig. 2, N.

ype Location—National Museum, Melbourne, (not as stated formerly in the Australian luseum).

ype Locality—130 miles south-east of Broome, Western Australia.

Neodartus Melichar

eodartus Melichar, 1903, Homopt.Faun.Ceylon 162.

eovulturnus Evans, 1937, Mem.Queensland Mus. 11: 150.

eodartus Melichar, Evans, 1955, Fasc. 37 Explor.du Parc.Nat.Upemba 31.

Small black, brown, or whitish insects. The face and crown of the head form a continuous curved surface and although at right angles to each other are not sharply differentiated. Part of the fronto-clypeus is situated on the crown and the sutures that separate it from the vertex may be discernible. The ocelli are on the crown and may be between, or in front of, the eyes. The pronotum is declivous and wide laterally and the propleurae separate the eyes from the bases of the tegmina. The tegmina overlap apically and have wide appendices and there is a supplementary appendix, that is to say, part of the tegmina, in addition to the appendices lack pigmentation. With this development is associated an irregularity of the shape of the apices of the tegmina.

Type species—*Neodartus acocephaloides* Melichar (Ceylon).

This genus has representation also in the Oriental Region and in tropical Africa.

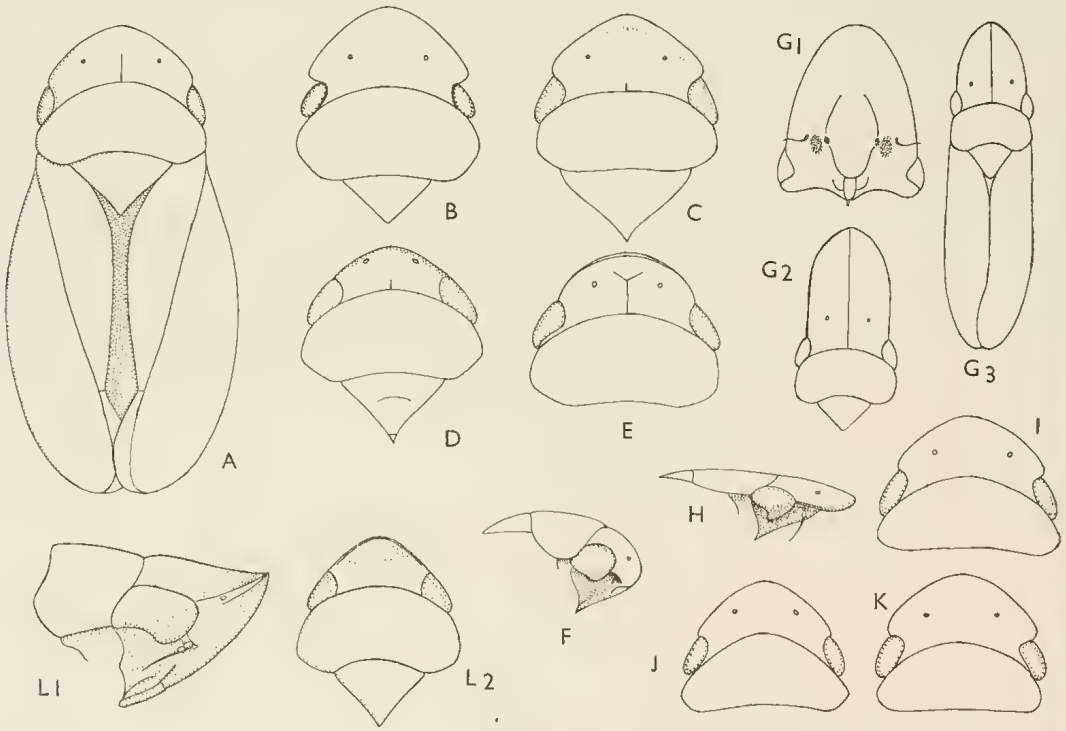


Fig. 33: A, *Vulturnus punctulatus;* B, *Thaumatoscopus dunkensis;* C, *Thaumatoscopus galeatus;* D, *Neodartus pallidus;* E, *Vulturnus vappa;* F, *Neodartus brunneus;* G1, *Platyscopus badius,* ♂, face of head; G2, *P. badius,* ♀, head and thorax; G3, *P. badius,* ♂; H, *Vulturnus maculosus,* head and thorax in profile; I, *Vulturnus voltumna;* J, *Vulturnus vaecors;* K, *Vulturnus vulturnus;* L1, *Vulturnellus shephardi,* head and pronotum in profile; L2, *Vulturnellus shephardi.*

Neodartus brunneus (Evans) (comb.nov.)

(Fig. 33, F)

Neovulturnus brunneus Evans, 1937, Mem.Queensland Mus. 11: 151.

Length, ♀, 3·5 mm. General coloration brown mottled with white. Face of head black. Crown, dark brown spotted with cream; hind margin of fronto-clypeus discernible. Pronotum concolorous with the crown. Scutellum pale ochreous with dark brown markings. Tegmen short, apically steeply declivous, white except for reticulate brown markings.

ıd the veins, which are brown; a dark brown transverse fascia extends from the apex of ıe claval suture to the costal margin. Appendix and supplementary appendix pale hyaline rown.

ype Location—Queensland Museum.

ype Locality—Stanthorpe, Queensland.

Neodartus lapsus (Evans) (comb.nov.)

leovulturnus lapsus Evans, 1937, Mem.Queensland Mus. 11: 152.

Length, ♂, 2·8 mm. General coloration black. Head black, except for eyes, which re dark brown. Pronotum and scutellum concolorous with head. Tegmen black, with umerous small white spots proximally; distally, and separated by an entirely black area, lack, with somewhat larger white spots. Appendix and supplementary appendix, opaque rown.

ype Location—Queensland Museum.

ype Locality—Blunder, Queensland.

Neodartus maculosus (Evans) (comb.nov.)

leovulturnus maculosus Evans, 1937, Mem.Queensland Mus. 11: 152.

Length, ♂, 3·5 mm. General coloration black. Face of head, longitudinally concave, lack; crown black with an anterior central, approximately circular, pale area; sometimes lso with a few, or numerous, scattered brown spots. Pronotum shining black. Scutellum ntirely black, or entirely pale yellow. Tegmen black with numerous whitish spots between he veins.

Type Location—Queensland Museum.

Type Locality—Brookfield, Queensland.

Neodartus pallidus (Evans) (comb.nov.)

(Fig. 33, D)

Neovulturnus pallidus Evans, 1937, Mem.Queensland Mus. 11: 151.

Length, ♀, 4 mm. General coloration black or brown, the scutellum white or yellow. Face of head, black or very dark brown; maxillary plates marginally white; crown black, or dark brown medially; antennal ledges white. Pronotum light, or dark brown, mottled with cream, or grey. Scutellum white, or pale yellow, or whitish with dark brown markings. Tegmen whitish, mottled with an irregular and variable pattern of light and dark brown. (It is possible that this species may be a synonym of *N. maculosus*, the differences in coloration being a sex-associated factor.)

Type Location—Queensland Museum.

Type Locality—Mt Glorious, Queensland.

Vulturnus Kirkaldy

Vulturnus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 463.

Vulturnus Kirkaldy, Evans, 1937, Mem.Queensland Mus. 11: 152.

This genus differs from *Neodartus* in having the face of the head, which is convex anteriorly and concave posteriorly, separated from the crown by the thickened apex, which may be subfoliaceous. The crown is transverscly convex and the ocelli are on the crown in front of the eyes.

Type species—*Vulturnus vulturnus* Kirkaldy.

This genus, like *Neodartus*, has representatives in the Oriental Region and in Africa

Vulturnus vulturnus Kirkaldy

(Fig. 33, K)

Vulturnus vulturnus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 463.

Vulturnus vulturnus Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 82.

Length, ♂, 4, ♀, 4·5-4·7 mm. Face of head black, posteriorly orange-red. Crown, pronotum and scutellum yellowish-brown. Tegmen ochreous with brown scribble-like markings and pearl and hyaline areas.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Vulturnus vaecors Kirkaldy

(Fig. 33, J)

Vulturnus vaecors Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 84.

Length, ♂, 4·2 mm. Similar in coloration to *V. vulturnus*, but the crown of the head is differently shaped.

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Vulturnus vanduzei Kirkaldy

Vulturnus vanduzei Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 83.

Length, ♂, 4-4·5 mm. Face of head black, except for a few reddish-brown markings, and the basal margin, which is white. Crown of head, pronotum and scutellum, ivory white tinged with greenish. Tegmen ivory white tinged with green with a "scribbled" appearance; "scribbles" and veins brown.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Vulturnus voltumna Kirkaldy

(Fig. 33, I)

Vulturnus voltumna Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 83.

Vulturnus virgidemia Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 83 (syn.nov.).

Length, ♂, ♀, 5·4 mm. Face of head black, except for the fronto-clypeus which is, in part, brown. Crown of head, pronotum and scutellum ochreous with brown markings. Tegmen tortoiseshell.

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Vulturnus vaedulcis Kirkaldy

Vulturnus vaedulcis Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 84.

Length, ♂, 3-3·2 mm. General coloration, tortoiseshell. Face of head black. Crown, pronotum and scutellum dark brown, thickly speckled with pale yellowish-brown. Tegmen pale yellowish-brown heavily veined and marked with black; apex of costal cell and of adjoining sub-apical cell, sometimes white.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Known distribution elsewhere—Sydney, New South Wales.

Vulturnus vappa Kirkaldy

Vulturnus vappa Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 85.

Length, ♂, ♀, 3·5 mm. General coloration brown with white markings. Face of head black. Crown and pronotum, brown, sometimes mottled with dark brown. Scutellum of similar, but darker coloration. Tegmen pale brown with a scribbled appearance and large hyaline white areas proximally, apically and ante-apically; veins light and dark brown.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Vulturnus vultuosus Kirkaldy

Vulturnus vultuosus Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 84.

Length, ♀, 3·7-4 mm. General coloration, brown, tegmen largely white. Face of head black, posteriorly pale brown; crown anteriorly white, posteriorly finely mottled with pale and dark brown. Pronotum concolorous with the crown and with a transverse, median, white band. Scutellum dark brown mottled with pale brown; muscle impressions white. Tegmen hyaline white, with a broad transverse dark brown fascia, spotted with pale yellowish-brown and some brown markings both proximally and distally on the fascia; veins light and dark brown; venation proximally reticulate.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Vulturnus hackeri Evans

Vulturnus hackeri Evans, 1937, Mem.Queensland Mus. 11: 153.

Length, ♀, 3·8 mm. Face of head, black, posteriorly and apically, pale yellowis brown. Crown pale yellowish-brown mottled with brown. Pronotum dark brown wi yellowish-grey. Scutellum yellow with dark brown markings. Tegmen silvery white wi dark brown and black reticulations between the veins.

Type Location—Queensland Museum.

Type Locality—Sunnybank, Queensland.

Vulturnus montanus Evans

Vulturnus montanus Evans, 1937, Mem.Queensland Mus. 11: 154.

Length, ♀, 4 mm. Face of head black; posteriorly and apically, pale yellow Crown pale yellow or ochreous with 2 circular black spots between the ocelli and the apo and a few obscure markings between the ocelli. Pronotum, anterior third, yellowish-brow remainder greyish-white, the whole with scattered, dark brown markings. Scutellum marke with a pattern of yellow and dark brown. Tegmen silvery-white with dark brow reticulations.

Type Location—Queensland Museum.

Type Locality—Leura, New South Wales.

Known distribution elsewhere—Brisbane (Queensland).

Vulturnus punctulatus Evans

Vulturnus punctulatus Evans, 1937, Mem.Queensland Mus. 11: 153.

Length, ♂, 3·8 mm. Face of head, black, apical margin pale yellowish-brown Crown, pronotum and scutellum black with numerous small yellowish or reddish-brow spots. Tegmen greyish, or yellowish-white, with dark brown, or black, reticulations an sometimes with one or more white ante-apical cells.

Type Location—Queensland Museum.

Type Locality—Nanango district, Queensland.

Known distribution elsewhere—Woodenbong (New South Wales); Macpherson Ranges (Queens land).

Vulturnus sordidus Evans

Vulturnus sordidus Evans, 1937, Mem.Queensland Mus. 11: 153.

Length, ♂, 3·8 mm. Face of head, black; posteriorly and apically pale yellowish brown. Crown pale yellowish-brown mottled with brown. Pronotum dark brown spotte with yellowish-grey. Scutellum yellow with dark brown markings. Tegmen silvery-whit with dark brown and black reticulations between the veins.

Type Location—Queensland Museum.

Type Locality—Sunnybank, Queensland.

Thaumatoscopus Kirkaldy

Thaumatoscopus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 462.

The principal character separating this genus from *Vulturnus* is the shape of the crown f the head, which is apically foliaceous instead of being thickened.

Type species—*Thaumatoscopus galeatus* Kirkaldy.

Thaumatoscopus galeatus Kirkaldy

(Fig. 33, C)

Thaumatoscopus galeatus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 462.

Length, ♀, 7 mm. "Luteotaccous; foliaceous part of frons (fronto-clypeus) range-red; the rest, as well as the basal two-thirds of the genae and the base of the clypeus nd of lora black; rest of face, the rostrum, anterior and intermediate legs, testaceous. rosternum and 4 spots on the apical margin of the scutellum, black. Tegmina pale uteotestaceous, more or less hyaline, veins opaque suffused discally with brownish, sparingly arked with black. Posterior femora and tibiae mostly black."

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Thaumatoscopus dunkensis Evans

(Fig. 33, B)

Thaumatoscopus dunkensis Evans, 1937, Mem.Queensland Mus. 11: 154.

Length, ♂, 4·2 mm. Face of head black, apical margin, brown. Crown, pronotum nd scutellum pale yellowish-brown. Tegmen pale yellowish-brown with dark brown ticulations; costal margin distally and ante-apical and apical cells, in part, white; veins ark brown.

Type Location—Queensland Museum.

Type Locality—Dunk Island, Queensland.

Platyscopus Evans

Platyscopus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 145.

The head is produced and spatulate, ventrally concave and dorsally convex. The own has a median carina and the ocelli are in front of the eyes mid-way between the carina nd the sides of the head. The pronotum is parallel-sided and collar-like, and the tegmina, hich overlap apically, have wide appendices. The hind tibiae have 3 rows of spines, omprising one of alternate long and short spines, one of short, strong spines separated by inute spines, and a row of hair-like spines. The type species is superficially ledrine in ppearance but may be distinguished by the eyes, as seen on the face of the head, being close the anterior margin of the head, and the nature of the tibial armature.

Type species—*Platyscopus badius* Evans.

Platyscopus badius Evans

(Fig. 33, G1-3)

Platyscopus badius Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 146.

Platyscopus coloratus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 146 (syn.nov.).

Length, ♂, 5·5, ♀, 7 mm. Face of head, chestnut-brown; crown chestnut-brown partially suffused with dull brown, or with a median black stripe. Pronotum, chestnut-brown. Scutellum chestnut-brown or black. Tegmen hyaline-brown, apically, in ♀ smoky brown; veins brown.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Vulturnellus gen.nov.

The face of the head is medially flattened, sloping laterally towards the eyes. The ocelli are on the narrow anterior margin of the head, close to, but not touching the eyes. The crown of the head has an anterior marginal ridge and is slightly depressed anterior to the eyes. The pronotum is widest posteriorly and the tegmina are rounded and somewhat elytra-like.

Type species—*Vulturnellus shephardi* sp.nov.

Vulturnellus shephardi sp.nov.

(Fig. 33, L1, L2)

Length, ♀, 4 mm. Face of head black. Crown, pronotum and scutellum black with pale golden hairs. Tegmen mottled with pale and dark brown in the form of small, pale, oval areas with darker margins, and with a pair of irregular, transverse, white fasciae; appendix and 2 large adjacent cells, which form part of the wing overfold, pale hyaline brown.

Holotype, ♀, from Broken Hill, New South Wales (coll. F.W. Shephard, 1924) in the Australian Museum.

Drabescinae

Leafhoppers in the genus *Drebescus* Stål resemble those in the genus *Selenocephalus* Germar in having their ocelli situated on a marginal rim and for this reason species in these two genera have formerly been grouped together in the same tribe, (Evans, 1947a).

Ishihara (1950) and Linnavuori (1960) are however of the opinion that *Drabescus*, and certain other genera represented in tropical Africa, the Oriental Region and Oceania, are sufficiently distinctive to merit segregation as a separate subfamily.

Drabescus Stål

Drabescus Stål, 1870, Ofvers.Vetensk.Förh.Stockh. 27: 738.

The face of the head is flattened and considerably wider than long. The labium terminates at the base of the hind coxae and the lora do not extend as far as the anterior margins of the maxillary plates. The antennal ledges are roundly arched and the antennae approximately twice the length of the width of each eye. There is an apical rim separating the face from the crown of the head, on which the ocelli are situated adjacent to the sides of the fronto-clypeus and at a distance from the eyes. The crown of the head, which is nearly

twice as long in the centre as against the eyes, consists in part of the fronto-clypeus. The pronotum is laterally wide and the scutellum is longer than the pronotum. The tegmina, which have normal venation, have very wide appendices and raised, evenly spaced, spots on the veins and they overlap steeply apically.

The hind tibiae have 4 rows of strong spines, 1 row of which is mounted on evenly-sized prominent bases.

Type species—*Bythoscopus remotus* Walker (Philippines).

Drabescus heroni sp.nov.

(Fig. 32, H)

Length, ♂, 7, ♀, 8 mm. General coloration brown. Face of head pale, or, dark brown; posteriorly black with a broad transverse ivory stripe, interrupted by the fronto-clypeus. Apical margin of head ivory, bordered on each side with black. Crown, pale or mottled brown. Pronotum brown with evenly distributed greyish spots and a narrow anterior, and lateral, white border. Scutellum concolorous with pronotum anteriorly; posteriorly, ivory. Tegmen evenly smoky-brown, or mottled brown with a median transverse vitreous fascia.

Holotype ♂, from Heron Island, Queensland (coll. H.G. Cogger, 12/61) in the Australian Museum.

The above species has been described because it is the first one belonging to the genus *Drabescus* to be recorded from Australia. It would seem to closely resemble *D. stramineus* Distant which has been described from India.

Lamia Linnavuori

Lamia Linnavuori, 1960, Acta Ent. Fenn. 15: 39.

The face of the head is wider than long and the antennal ledges form the margin of the head between the eyes and the flattened fronto-clypeus. The crown of the head is flat and roundly produced in front of the eyes, and the ocelli, which are on the anterior lateral margin of the crown, are visible only in dorsal aspect. The eyes are approximately equal in width to the space between them. The pronotum is wide laterally and the tegmina, which have very wide appendices, overlap steely apically.

Type species—*Lamia cydippe* Linnavuori (Fiji).

Because of present uncertainty of the affinities of this genus it is only tentatively placed in the Drabescinae to which subfamily it has been ascribed by Linnavuori (1960).

Lamia placida sp.nov.

(Fig. 37, B1, B2)

Length, ♀, 4·8 mm. Face of head whitish. Crown white, with 4 orange spots. Pronotum white with 4 anterior and 4 posterior orange spots. Scutellum white with obscure orange markings. Tegmen whitish with a brown scribble pattern.

Holotype ♀ from Lake Placid, near Cairns, Queensland (coll. D. McAlpine, 1/59) in the Australian Museum.

L. placida differs from the type species in having a considerably more extensive crown and also in coloration.

Deltocephalinae

The Deltocephalinae, formerly known as the Euscelinae, may be recognized by the marginal position of the ocelli and the lack, in most genera, of certain cephalic features which occur in other groups of leafhoppers with marginal ocelli. Thus, prominent antennal ledges are seldom developed and the crown of the head is seldom sharply differentiated from the face.

The subfamily, which has representatives in all parts of the world, has been intensively studied in Europe and North America, where it is most abundantly represented, but not elsewhere. Many, possibly the majority of the species recorded from Australia are recent introductions, while several doubtless form part of the late Indo-Malayan faunal invasion. True endemic genera and species are few in number but are of undoubted occurrence. Beeause of the widespread distribution of some of the introduced species, certain of them may have been described several times from different parts of the world. This work is concerned particularly with Australian leafhoppers and while every attempt has been made to identify introduced forms, lack of sufficient comparative material makes it impossible to ensure that the names ascribed to them are necessarily the correct ones.

It is appreciated, moreover, that certain genera which have been ascribed in this work to the Deltocephalini might be better placed in other tribes, as for example in the Euscelini, as defined by Linnavuori (1959). Such action, however, requires critical studies of the genera concerned and, as yet, these have not been undertaken.

Key to the Tribes of the Deltocephalinae represented in Australia

1. Small fragile insects somewhat typhlocybine in appearance; venation of tegmen redueed ..... **Macrostelini**

   Not as above 2

2. (1) Face of head more or less diamond-shaped, the eyes, genae and maxillary plates forming one continuous curved surface; antennae unusually long; crown of head sometimes arrow shaped ..... **Platymetopiini**

   Not as above 3

3. (2) Ocelli situated on a well-defined marginal rim..... **Selenocephalini**

   Ocelli not situated as above..... **Deltocephalini**

Deltocephalini

This tribe includes the most generalised and as well the largest and smallest representatives of the sub-family. Apart from one spccies, *Nephotettix apicalis*, which is entirely, or partly, green in colour, the Australian Deltocephalini are, for the most part, drab insects lacking distinctive features. As the genera deseribed in the following pages represent only a small part of the Australian deltocephaline fauna, a key to the genera is omitted.

Euleimonios Kirkaldy

Euleimonios Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 342.

Aconurominus Linnavuori, 1954, Ann.Ent.Fenn. 20: 83 (syn.nov.).

The face of the head is slightly wider than long and the labium terminates between the middle coxae. The lora, whieh are unusually large, overlap the sides of the ante-clypeus anteriorly; posteriorly, in the male they are separated from the genae by a ridge. The

ante-clypeus, which is depressed just prior to where it widens, is partly concealed by the swollen lora. The crown of the head is considerably wider in the centre than against the eyes. The ocelli, which are small, and visible in dorsal aspect, are on the antcrior margin of the head, inside the lateral frontal sutures. The anterior margin of the pronotum is arched.

Type species—*Euleimonios demittendus* Kirkaldy.

Euleimonios flavidiventris (Stål)

(Fig. 37, C)

Jassus flavidiventris Stål, 1859, Eugen.Resa.Ins. 294.

Euleimonios demittendus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 342 (syn.nov.).

Aconurominus flavidiventris (Stål), Linnavuori, 1954, Ann.Ent.Fenn. 20: 84.

Length, ♂, 3, ♀, 3·8-4 mm. General coloration pale orange-yellow. Face of head, lora and maxillary plates coffee-brown, fronto-clypeus reddish-brown. Crown of head and thorax orange mottled with yellow; in the female, but not in the male, a row of 6 black spots along the anterior margin of the crown. Tegmen, hyaline brownish-yellow.

Type Location—Natural History Museum, Stockholm.

Type Locality—Sydney, New South Wales.

Known distribution elsewhere—Woy Woy (New South Wales).

Occiplanocephalus Evans

Occiplanocephalus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 146.

The face of the head is wider than long and almost flat. The crown is approximatelv one-third the length of the pronotum and the eyes, which project considerably beyond the pronotum, are approximately equal to half the length of the pronotum.

The tegmina, which are short, and do not extend as far as the apex of the abdomen, have wide appendices which continue around their apices; the venation is somewhat reticulate. The hind tibiae have an armature of strong spines, 1 row of which is mounted on enlarged bascs, and between each spine in this row is a series of three, or, four minute spines.

Type species—*Occiplanocephalus ravus* Evans.

Occiplanocephalus ravus Evans

(Fig. 34, S)

Occiplanocephalus ravus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 147.

Length, ♂, 6·8 mm. Face of head pale greyish-brown with transverse brown muscle impressions. Crown grey. Pronotum grey mottled with brown. Scutellum grey, with brown and black markings. Tegmcn whitish hyaline; veins brown.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Orosius Distant*

Orosius Distant, 1918, Faun.Brit.Ind.Rhyn. 7: 85.

Nesaloha Oman, 1943, Pan-Pacific Ent. 19 (1): 33.

The face of the head is wider than long. The labium extends to between the middl coxae. The fronto-clypeus is convex and the sides of the head slope steeply laterally. Th distance between the eyes is approximately equal to the width of each eye. The tegmin are long and narrow and have wide appendices.

Type species—*Orosius albicinctus* Distant, India.

Orosius argentatus (Evans)

(Fig. 34, D)

Thamnotettix argentata Evans, 1938, Pap.Roy.Soc.Tasm. 1937: 15.

Orosius argentatus (Evans) Oman, 1949, Ent.Soc.Wash.Mem. 3: 11, 15.

Nesophrosyne argentatus (Evans), Linnavuori, 1960, Ins.Micronesia 6 (5): 320.

Length, ♂, 3·3, ♀, 3·6 mm. Face of head whitish-yellow with black and brow markings, those on the fronto-clypeus, transverse. Crown of head whitish-yellow with pair of oval, outwardly directed, black markings and sometimes with a pair of adjacen black, or brown, spots near the anterior margin and a posterior pair adjacent to the eyes Pronotum, anteriorly with pale reddish-brown markings; posteriorly grey with a patter of scribbled brown, or black, markings. Scutellum pale yellow, sometimes with a centra black rectangular marking and with 4 small black or, brown spots. Tegmen hyaline whitish with a brown scribbled pattern, enclosing numerous oval pale areas and usually witl 3 black markings at the apices of veins Rla, Rib, and Rs. The male genitalia are illustrate in Linnavuori, 1960.

Type Location—Australian Museum.

Type Locality—Burnley, Victoria.

Known distribution elsewhere—Widespread in Australia and of probable Oriental origin. Thi insect is the vector of at least two economically important virus diseases (Day and McKinnon 1951).

Orosius canberrensis (Evans)

Thamnotettix canberrensis Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 15.

Length, ♀, 3 mm. General coloration pale yellow, eyes dark brown, ocelli red Crown of head longest in centre.

Type Location—Australian Museum.

Type Locality—Canberra, A.C.T.

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* This genus is currently being revised by Ghauri.

Soracte Kirkaldy

Soracte Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 55.

The face of the head is as wide as long, the ante-clypeus is slightly narrower anteriorly than posteriorly and the lora do not reach as far as the anterior margins of the maxillary plates. The ocelli, which are marginal in position and closely adjacent to the eyes, are visible from above. The crown, which is approximately triangular, is slightly longer than the pronotum. The tegmina have wide appendices.

Type species—*Soracte apollonos* Kirkaldy.

Soracte apollonos Kirkaldy

(Fig. 35, B1-3)

Soracte apollonos Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 55.

Length, ♂, ♀, 3·5-4·4 mm. Face of head pale brown, with curved, dark brown muscle impressions on the fronto-clypeus. Crown, brownish-olivaceous, with a white, cross-shaped marking; the arms of the cross curve posteriorly. Pronotum concolorous with the crown, with 4 pale brown longitudinal stripes. Tegmen whitish, some cells margined with brown and some brown costal and apical markings; veins white. Male genitalia as in Fig. 35, B2, B3.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Known distribution elsewhere—Ingham, Queensland.

Soractellus gen.nov.

This genus resembles *Soracte* in broad structural features. It differs in the shape and proportions of the several parts of the male genitalia.

Type species—*Soractellus brunneus* sp.nov.

Soractellus brunneus sp.nov.

(Fig. 35, C)

Length, ♂, 3·6, ♀, 4·2 mm. Face of head, ivory; lora margined with brown; fronto-clypeus with broad, curved brown muscle impressions. Crown anteriorly very dark brown with an apical pale brown triangular marking. Pronotum, anteriorly pale brown mottled with dark brown; medially pale brown; posteriorly very dark brown. Tegmen pale hyaline brown; veins broadly white margined with dark brown. Legs pale brown with dark brown bars. Male genitalia as in Fig. 35, C.

Holotype ♂, and *Allotype* ♀ from Ingham, Queensland, in the Australian Museum.

Soractellus nigrominutus sp.nov.

(Fig. 35, H)

Length, ♂, 2·2 mm. General coloration, yellowish-grey. Face of head, black with transverse posterior muscle impressions, as wide as long, sloping steeply at sides; ante-clypeus convex. Crown greyish golden-brown, longest in the centre and longer than the pronotum.

Pronotum and scutellum concolorous with the crown. Tegmen not fully developed, extending almost as far as apex of abdomen, grey; veins bordered with brown and some obscure brown markings. Male genitalia as in Fig. 35, H.

Holotype ♂ from Moolooka, Queensland (11/44) in the Australian Museum.

Exitianus Ball

Exitianus Ball, 1929, Trans.Amer.Ent.Soc. 55: 5.

Mimodrylix Zachvatkin, 1935, Wiss.Ber.Moskauer Staats.Univ. 4: 108.

The five species listed below and ascribed to this genus comprise a group of leafhoppers of wide distribution in the tropics and sub-tropics of the world. They range in length from 3·8-6 mm and have a pallid appearance. The face of the head may be brown, or pallid, with transverse brown muscle impressions on the fronto-clypeus. The crown, which is anteriorly rounded and usually somewhat longer in the centre than against the sides, has a median transverse brown, or black, band which may be interrupted in the centre. The pronotum may likewise have a transverse, and usually, broken stripe. The tegmina are colourless-hyaline, and sometimes have longitudinal brown streaks. The veins are brown and the appendix wide.

As the true status of the species listed below is uncertain they are not described. It is quite certain that there are many more synonyms of *E. capicola* than those listed here.

Although these insects are of wide distribution in Australia, they are most abundant in the warmer regions of the continent and they feed on grasses.

Type species—*Cicadula exitiosa* Uhler (North America).

Exitianus contemptus (Kirkaldy) (comb.nov.)

Nephotettix contemptus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9); 332.

Length, ♀, 5·5 mm.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Exitianus capicola (Stål)

(Fig. 34, A)

Athysanus capicola Stål, 1855, Öfvers.Vetensk.Akad.Förh.Stockh. 12: 99.

Jassus fusconervosus Motschulsky, 1863, Moscow Soc.Nat.Bull. 36: 97.

Athysanus taeniaticeps Kirschbaum, 1868, Jahrb.Ver.Nat.Nassau 21: 87.

Nephotettix plebeius Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 331.

Nephotettix eurytus Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 54 (syn.nov.).

Eutettix norrisi Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 14 (syn.nov.).

Euscelis transversus Metcalf, 1946, Insects of Gaum, 2 B.P.Mus.Bull 189: 122.

g. 34: A, *Exitianus capicola*, head and thorax; B, *Loralia pulcherrima;* C, *Exitianiellus elegantula;* D, *Orosius gentatus;* E, *Hishimonus disciguttus;* F, *H. disciguttus*, male genitalia; G, *Paralimus smithtoniensis*, head and orax; H, *Exitianus simillimus,* male genitalia; I, *Deltocephalus dorsalis;* J, *Thamnophryne nysias*, head and orax; K, *T. nysias*, aedeagus; L, *Hishimonus melaleucae*, aedeagus and basal plate; M, *H. melaleucae*, bgenital plates and parameres; N, *Deltocephalus coronifer*, head and thorax; O, *D. coronifer*, male genitalia; *Pingellus nigroflavus*, head and thorax; Q, *P. nigroflavus*, male genitalia; R, *Limotettix incerta*, male genitalia; *Occiplanocephalus ravus;* T, *Deltocephalus dorsalis*, aedeagus; paramere and subgenital plate; U, *Scaphetus brunneus*, male genitalia.

Mimodrylix capicola Ishihara, 1954, Matsuyama Agric.Coll.Sci.Rept. 14: 6.

Exitianus capicola (Stål), Linnavuori, 1960, Ins.Micronesia 6 (5): 310.

Length, ♂, ♀, 4·3-6 mm.

Type Location—Natural History Museum, Stockholm.

Type Locality—South Africa.

Exitianus simillimus Matsumura

(Fig. 34, H)

Athysanus simillimus Matsumura, 1914, Tohoku Imp.Univ.J.Coll.Agric. 5: 185.

Exitianus simillimus (Matsumura), Linnavuori, 1960, Ins.Micronesia 5 (5): 312.

Length, ♂, ♀, 3·5-4·2 mm.

Type Location—Unknown.

Type Locality—Unknown.

Exitianus pallida (Evans) (comb.nov.)

Eutettix pallida Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 14.

Length, ♀, 6 mm.

Type Location—Australian Museum.

Type Locality—Crawley, Western Australia.

Exitianus selbyi (Evans) (comb.nov.)

Eutettix selbyi Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 14.

Length, ♀, 7 mm.

Type Location—National Museum of Victoria.

Type Locality—Mutchilba, North Queensland.

Nephotettix Matsumura

Nephotettix Matsumura, 1902, Termez.Fuzet. 25: 356, 378.

The species described below is an extremely variable one. Since the status of the several colour forms is uncertain, and the insects, which are not native to Australia, are readily recognizable, a generic description is unnecessary.

Type species—*Selenocephalus cinticeps* Uhler (= *apicalis* Motschulsky) (Japan).

Nephotettix apicalis Motschulsky

Pediopsis apicalis Motschulsky, 1858, Etudes Ent. 7: 110.

Nephotettix apicalis (Motschulsky), Linnavuori, 1960, Ins.Micronesia 6 (5): 314 (full synonomy).

Length, ♂, ♀, 5 mm. General coloration bright green, or green with black markings. Face of head, entirely, or in part, black. Crown of head of even length, or slightly longer in the centre than against the eyes, green, with or without, a broad transverse black stripe. Pronotum green, sometimes with a transverse black stripe anteriorly. Scutellum green. Tegmen green, apically hyaline pale, or dark, brown; posterior angle of clavus and a marking on the corium, sometimes black. Body beneath black, or black with green markings.

Type Location—Not known.

Type Locality—Not known.

Known distribution—Tropics and sub-tropics of the world.

Collected on—Grasses.

Exitianiellus gen.nov.

The face of the head is wider than long and approximately oval in outline. The labium terminates between the middle coxae. Antennal ledges are lacking and the large circular antennal bases are oblique. The crown of the head, which is evenly rounded, is very slightly longer in the centre than against the sides. The tegmina are elongate and the appendices wide. The outer valves of the ovipositor are spinous.

Type species—*Exitianiellus elegantula* sp.nov.

Exitianiellus differs from other Australian Deltocephalini, in which the crown is evenly rounded, in the unusual length of the antennae.

Exitianiellus elegantula sp.nov.

(Fig. 34, C)

Length, ♀, 6 mm. Length of antennae, 3 mm. General coloration golden brown. Face of head, pale biscuit, with 2 round, widely spaced, black markings. Crown yellowish with a transverse, sometimes broken, band. Pronotum concolorous with the crown with a broad posterior brown band and a pair of lateral brown markings. Scutellum ivory; muscle impressions brown and transversely ridged.

Holotype ♀, from Orford, New South Wales (coll. D.K. McAlpine 3/62) in the Australian Museum. Other specimens from Eungella, Queensland.

Limotettix J. Sahlberg

Limotettix J. Sahlberg, 1871, Not.Sällsk.Faun.Flor.Fenn. 9: 224.

The face of the head is widely diamond-shaped and the labium terminates between the middle coxae. The ante-clypeus is broad and slightly wider posteriorly than anteriorly. The fronto-clypeus, which is convex, slopes laterally and narrowly extends onto the crown of the head. The ocelli, which are marginal in position, are close to, but not immediately adjacent to the eyes. The crown is roundly acute and considerably longer in the centre than against the sides. The tegmina have wide appendices.

Type species—*Cicada striola* Fallen (Europe).

Limotettix tachyporias Kirkaldy

Limotettix tachyporias Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 64.

Length, ♂, 3·8, ♀, 4 mm. "Pale yellowish, tergites and the underside paler. Frons basally and the lateral angles of the pronotum blackish brown. Tegmina hyaline with an entire longitudinal blackish-brown median stripe. Vertex rounded, slightly angulate, extending in front of eyes, a trifle longer than wide at base."

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Limotettix incerta sp.nov.

(Fig. 34, R)

Length, ♂, 4, ♀, 4·5 mm. Face of head yellow; margin of lora, ante-clypeus and transverse muscle impressions on fronto-clypeus, black. Crown, yellow with curved muscle impressions laterally and one or two transverse black stripes. Pronotum and scutellum yellowish-brown with irregular black markings. Tegmen evenly hyaline-brown or hyaline-brown with whitish veins margined with brown, or black; costal margin white. Male genitalia as in Fig. 34, R.

Holotype ♂, and *Allotype* ♀, from Wilson's Valley, Mt Kosiusko (coll. J.W.E., 3/62) in the Australian Museum. Other localities, Miena (Tasmania); Brisbane (Queensland); Auckland, Greymouth (New Zealand).

Pingellus gen.nov.

The face of the head is approximately as wide as long, and the labium terminates between the bases of the middle coxae. The anterior margin of the ante-clypeus is more than twice the width of the posterior margin. The frons is separately differentiated from the post-clypeus and small, oblique, antennal ledges are present. The apex of the head is evenly rounded and the crown, which is declivous, is equal in length with the eyes on each side. The tegmina have narrow appendices and the 2 apical cells adjacent to the appendix take part in the tegminal overfold.

Type species—*Pingellus nigroflavus* sp.nov.

Pingellus differs from other deltocephaline genera described from Australia in the retention of a distinct frons and small, but well-defined, antennal ledges.

Pingellus nigroflavus sp.nov.

(Fig. 34, P, Q)

Length, ♂, 4 mm. A striking species black and orange in colour. Face black, except for a few transverse brown markings on the post-clypeus posteriorly, and a transverse yellow marking on the frons which is continuous laterally on the vertex, on each side, where it is amalgamated with the apices of a post-frontal transverse, orange, stripe.

Crown anteriorly black, posteriorly, deep orange. Pronotum with five and scutellum with four longitudinal deep orange stripes. Tegmen hyaline-yellow, apically and ante-apically suffused with brown; veins broadly dark brown. Male genitalia as in Fig. 34, Q.

Holotype ♂ from Lamington National Park, Queensland (coll. I.C. Yeo, 2/58) in the Queensland Museum.

Anemochrea Kirkaldy

Anemochrea Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 329.

On the face of the head, which is longer than wide, the ante-clypeus is parallel-sided and the lora, which are small, are widely separated from the anterior margins of the maxillary plates. The sides of the fronto-clypeus, posterior to the antennae, are in contact with the eyes on each side. The ocelli, which are marginally situated, are visible neither in ventral nor dorsal aspect. The crown is arrow-shaped and the eyes are longer than the sides of the rest of the crown.

Type species—*Anemochrea mitis* Kirkaldy.

Anemochrea mitis Kirkaldy

(Fig. 35, G1, G2)

Anemochrea mitis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 330.

Length, ♂, ♀, 3-4·5 mm. Face of head brown; muscle impressions dark brown. Crown of head finely rugose, pale brown with 3 transverse brown bands. Pronotum pale brown with darker markings anteriorly. Tegmen brown, apical cells dark brown with pale yellowish-white patches. The tegmina are short and in female insects the ovipositor extends considerably beyond the apices of the folded tegmina.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Phrynophyes Kirkaldy

Phrynophyes Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 327.

The head is triangularly produced anteriorly and is longer than the width between the eyes. The eyes, which are large, are included in the curve of the head. The tegmina are short and do not reach as far as the apex of the abdomen.

Type species—*Phrynophyes phrynophyes* Kirkaldy.

Phrynophyes phrynophyes Kirkaldy

(Fig. 35, E)

Phrynophyes phrynophyes Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Sta. 1 (9): 327.

Length, ♀, 6 mm. General coloration metallic greenish-grey. Face of head, ante-clypeus wider than the lora; fronto-clypeus basally convex, flattening gradually towards the truncate apex. Crown slightly longer than the width between the eyes. Veins of tegmen, whitish.

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Collected on—Grass.

Phrynophyes parvula Kirkaldy

Phrynophyes parvula Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 328.

Length, ♀, 4 mm. General coloration, metallic green. Face of head, ante-clypeu slightly wider than the lora; fronto-clypeus, narrowing posteriorly. Crown of head abou three times as long as wide between the eyes. Tegmen consisting of short truncate pads.

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Collected on—Grass.

Phrynophyes kirkaldyi Evans

(Fig. 35, F1, F2)

Phrynophyes kirkaldyi Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 15.

Length, ♀, 5 mm. General coloration (living specimens) metallic green. Face c head pale yellowish-brown, transverse muscle impressions brown; eyes dark green. Crown apically acute, pale yellowish-green; distance between anterior corners of eyes greater tha between internal posterior corners; ocelli minute, visible in dorsal aspect. Pronotum an scutellum yellowish-green. Tegmen hyaline olive-green; costal margin whitish-green veins outlined in brown. Abdomen in ♀ extending considerably beyond folded tegmina Male genitalia as in Fig. 35, F2.

Type Location—Australian Museum.

Type Locality—Snug, Tasmania.

Thamnophryne Kirkaldy

Thamnophryne Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 61.

Tasmanotettix Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 12 (syn.nov.).

The face of the head is evenly convex, the antennal pits are shallow and the antennae long. The internal margins of the eyes lie close to the frontal suture on each side. The ocelli are visible in dorsal aspect and are adjacent to, but not touching, the eyes and the width of the crown is less than the width of each eye. The tegmina are long and narrow and extend considerably beyond the apex of the abdomen.

Type species—*Thamnophryne nysias* Kirkaldy.

Thamnophryne nysias Kirkaldy

(Fig. 34, J, K)

Thamnophryne nysias Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 61.

Tasmanotettix maculata Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 12 (syn.nov.).

Length, ♂, 4·5, ♀, 6 mm. Face of head dark brown, fronto-clypeus, and lora marginally, somewhat paler. Crown mottled with a regular pattern of dark brown, pale coffee-brown and yellow. Pronotum black with 6 small white transverse markings adjacent to the anterior border, posteriorly black flecked with yellowish grey. Scutellum brown with

white markings. Tegmen dark brown with hyaline-white oval and irregularly shaped reas; veins dark brown bordered with yellowish-brown. Thorax and abdomen ventrally lack, each abdominal segment posteriorly white. Male genitalia as in Fig. 34, K.

ype Location—H.S.P.A., Honolulu.

ype Locality—Mittagong, New South Wales.

nown distribution elsewhere—Hobart (Tasmania); Darwin (Northern Territory).

Campbellinella Distant

ampbellinella Distant, 1918, Faun.Brit.Ind. 7: 69.

The face of the head is longer than wide and the labium extends to between the mid oxae. The fronto-clypeus is medially flattened and the antennae, the basal segments of hich fill all the space between the fronto-clypeus and the eyes on each side, are more than vice the length of the width of the head. The ocelli are situated on the sides of the head, ery close to the eyes. The crown is flat and apically acute and is wider between the nterior, than the posterior, margins of the eyes.

ype species—*Campbellinella illustrata* Distant (India).

Campbellinella fatigandus (Kirkaldy) (comb.nov.)

(Fig. 35, D1, D2)

hrynomorphus fatigandus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 327.

Length, ♂, 4·9, ♀, 5·1 mm. General coloration evenly pale brown. Tegmen yaline; veins whitish. Male genitalia as in Fig. 35, D2.

ype Location—H.S.P.A., Honolulu.

ype Locality—Cairns, Queensland.

ollected on—Grass.

nown distribution elsewhere—Narrabeen (New South Wales).

Loralia gen.nov.

The face of the head is flat and wider than long and the labium terminates at the ase of the middle coxae. The antennae extend beyond the outer margin of the head and ntennal ledges are lacking. The crown, which is slightly longer in the centre than against ie eyes, is flat, and the ocelli, which are on the margin of the head, close to, but not djoining the eyes, are not visible from above. The tegmina are short and broad and in ie female do not extend as far as the apex of the abdomen.

ype species—*Loralia pulcherrima* sp.nov.

Loralia differs from other Australian deltocephaline genera in the shape of the crown nd tegmina.

Loralia pulcherrima sp.nov.

(Fig. 34, B)

Length, ♂, 4, ♀, 5·1 mm. A very distinctively marked species. Face of head, pale brownish-yellow with a broad transverse black band on the fronto-clypeus and between the eyes; another broad black, marginal, band, interrupted by a narrow, yellow transverse stripe. Crown, pale brownish-yellow. Pronotum anteriorly brown, posteriorly ivory. Tegmen in part hyaline brown, in part hyaline ivory with brown markings at apices of veins R1a, R1b, 1A and 2A; costal margin as far as R1a, white.

Holotype ♂ and *Allotype* ♀ from Wilson's Valley, Mt Kosiusko, New South Wales (coll. J.W.E. 3/62) in the Australian Museum.

Scaphoideus Uhler

Scaphoideus Uhler, 1889, Trans.Maryland Acad.Sci. 1: 33.

It is uncertain whether the species described below has been correctly ascribed to this genus, hence no separate generic description is given.

Type species—*Jassus immistus* Say (North America).

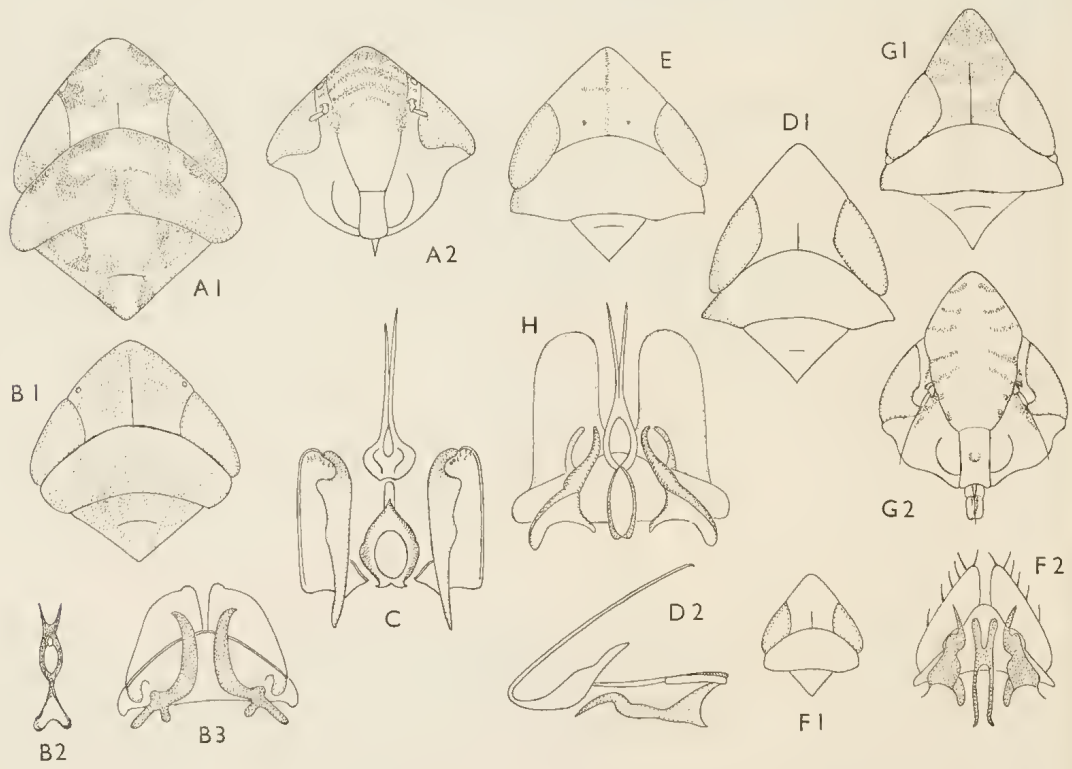

Fig. 35: A1, *Scaphoideus festivus*, head and thorax; A2, *S. festivus*, face of head; B1, *Soracte apollonos*, head and thorax; B2, *S. apollonos*, aedeagus; B3, *S. apollonos*, subgenital plates and parameres; C, *Soractellus brunneus*, male genitalia; D1, *Campbellinella fatiguandus*, head and thorax; D2, *C. fatiguandus*, aedeagus, basal plate and paramere; E, *Phrynophyes phrynophyes*, head and thorax; F1, *Phrynophyes kirkaldyi*, head and thorax; F2, *P. kirkaldyi*, subgenital plates, parameres and basal plate; G1, *Anemochrea mitis*, head and thorax; G2, *A. mitis*, face of head; H, *Soractellus nigrominutus*, male genitalia.

Scaphoideus festivus Matsumura

(Fig. 35, A1, A2)

Scaphoideus festivus Matsumura, 1902, Mats.Term.Fuz. 25: 384.

Scaphoideus festivus Matsumura, Distant, 1908, Faun.Brit.Ind. 4: 372.

Scaphoideus pristidens Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 333 (syn.nov.).

Length, ♂, 4·5-5·5 mm; ♀, 6 mm.

Face of head wider than long, the labium terminating between the middle coxae pale biscuit, with four or five broad, posterior, transverse black stripes, also a black marking below each antenna. Antennae considerably longer than width of head. Crown, flat, longest in centre with 2 anterior small black spots and 2 larger dark brown markings posteriorly. Pronotum brown with a broad central, irregular, and variably-shaped whitish area. Scutellum whitish with 2 large anterior and 2 small posterior brown markings, together with 4 centrally placed yellowish spots. Tegmen whitish-hyaline, partly suffused with brown; veins brown; Rla, Rlb and Rs recurved. Legs white, except for the apex and the bases of the spines on the hind tibiae; the posterior third of the first and the second tarsal segment, black.

Type Location—Unknown.

Type Locality—Japan.

Known distribution elsewhere—Cabramatta, Orford (New South Wales); Cairns (Queensland); Ceylon.

Hishimonus Ishihara

Hishimonus Ishihara, 1953, Sci.Rep.Matsuyama Agric.Coll. 11: 38.

Hishimonus Ishihara, Linnavuori, 1960, Acta.Ent.Fenn. 15: 47.

Linnavuori has furnished a detailed description of this genus of which the most readily recognizable characteristic is whitish tegmina with scribbled brown markings.

Type species—*Acocephalus discigutta* Walker.

Hishimonus disciguttus (Walker)

(Fig. 34, E, F)

Acocephalus discigutta Walker, 1857, J.Linn.Soc. 1: 172.

Eutettix bengalensis Distant, 1918, Faun.Brit.Ind. 7: 60.

Eutettix passiflorae Evans, 1941, Trans.Roy.Soc.S.Aust. 65: 40.

Hishimonus disciguttus Walker, Ishihara, 1953, Sci.Rep.Matsuyama Agric.Coll. 11: 38.

Hishimonus disciguttus (Walker), Lindberg, 1958, Comment.Biol. 19 (1): 179.

Length, ♂, ♀, 3·8-4 mm. Head pale yellowish, with obscure, pale brown markings. Pronotum concolorous with the crown, or greyish posteriorly mottled with pale brown. Scutellum pale yellowish. Tegmen whitish, apically mottled with brown, and with scattered brown spots; a triangular median brown fascia on each tegmen which, when the tegmina are folded, appears as a prominent and characteristic diamond shaped marking; veins pale brown. Male genitalia as in Fig. 34, F.

Type Location—British Museum.

Type Locality—Sarawak.

Known distribution elsewhere—India, W. Africa, Cape Verde Island, Fiji; Wyndham (Western Australia); Sydney (New South Wales); Brisbane (Queensland).

The above insect is an example of a widely distributed deltocephalid of which isolated populations have diverged, in so far as minor male genitalia differences are concerned.

Although Lindberg (1958) regarded *H. passiflorae* as a synonym. of *H. disciguttus*; Linnavuori (1960) has preferred to recognise each as a distinctive species. Only one specific name is accepted here, since this serves to emphasise the wide distribution of this leafhopper.

Hishimonus sellatus (Uhler)

Thamnotettix sellata Uhler, 1896, Proc.U.S.Nat.Mus. 19: 294.

Eutettix sellata (Uhler) Kirkaldy, 1906 Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 331.

Hishimonus sellatus (Uhler), Linnavuori, 1960, Acta.Ent.Fenn. 15: 49.

Although Kirkaldy recorded this species from Australia, as its occurrence is doubtful, it is not described.

Type Location—U.S. National Museum.

Type Locality—Japan.

Hishimonus melaleucae (Kirkaldy) (comb.nov.)

(Fig. 34, L)

Eutettix melaleucae Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 53.

Length, ♂, 3·2, ♀, 4·5-4·8 mm. Crown of head pronotum and scutellum pale yellowish, or brown, with whitish and black markings. Tegmen hyaline whitish, with scribbled brown markings; a brown marking at the apex of the clavus and another against the costal marking, veins brown. Male genitalia as in Fig. 34, L.

Type Location—H.S.P.A., Honolulu.

Type Locality—North Queensland.

Known distribution—Gladstone, Townsville (Queensland).

Collected on—*Melaleuca.*

Paralimnus Matsumura

Paralimnus Matsumura, 1902, Termez.Fuzet. 15: 356, 386.

Diemoides Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 13 (syn.nov.).

The face of the head is evenly convexly rounded, the antennal pits are shallow and the apical margin of the head is broad. The ocelli, which are on the dorsal border of the apical margin, lie well in front of the eyes and closer to the eyes on each side than to each other. The crown is arrow-shaped and wider than each eye. The pronotum, of which the

nterior margin is almost straight between the eyes, is narrow laterally and the propleurae eparate the eyes from the bases of the tegmina. The tegminal appendices are narrow, the nal veins medially fused and Rla and Rlb are recurved.

Type species—*Paralimnus fallaciosus* Matsumura (Japan).

Paralimnus smithoniensis (Evans) (comb.nov.)

(Fig. 34, G)

Diemoides smithoniensis Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 13.

Length, ♂, 4 mm, ♀, 4·8 mm. Face of head, brown; apex orange with 3 narrow, ransverse black stripes. Crown whitish with a median orange patch. Pronotum anteriorly range, posteriorly greyish. Scutellum with paired orange markings. Tegmen hyaline white, irregularly blotched with brown; claval veins orange, other veins brown.

Type Location—Australian Museum.

Type Locality—Smithton, Tasmania.

Known distribution elsewhere—Mt Wilson (New South Wales); Kuranda, Innisfail (Queensland); Forrest (Victoria).

Scaphetus gen.nov.

The face of the head is approximately as long as wide and the labium terminates at he base of the hind coxae. The anterior margin of the clypeus is twice the width of the osterior margin. The ocelli are on the crown of the head, adjacent to the anterior margin. The crown is flat and widest in the centre, and each eye is equal in width to half the width of the pronotum.

The sides of the pronotum widely separate the eyes from the bases of the tegmina and he pronotum is widest posteriorly. The tegmina have narrow appendices and Rla, Rlb nd Rs are reflexed.

Type species—*Scaphetus brunneus* sp.nov.

Scaphetus resembles *Platyretus* Melichar and *Scaphoideus* Uhler in many features but liffers in the greater width of the crown in relation to the eyes, and the dorsal position of he ocelli.

Scaphetus brunneus sp.nov.

(Fig. 34, U)

Length, ♂, 5, ♀, 6 mm. General coloration brown. Face of head pale chocolate rown with yellow markings. Apex with a transverse yellow band. Crown of head, ronotum and scutellum, yellow mottled with ochreous brown. Tegmen pale hyaline brown, r ivory with a brown reticulate pattern; distal two-thirds of costal margin white, with four r five thick, oblique black markings, an apical black marking and one in the neighbourhood f Cula. Male genitalia as in Fig. 34, U.

Holotype, ♂, from Bay of Islands and *Allotype* ♀ from Flora Hut, Nelson, New Zealand, in he Dominion Museum, Wellington, New Zealand.

Deltocephalus Burmeister

Deltocephalus Burmeister, 1838, Gen.Ins.I:pl. 14, sub-gen. 3.

Until such time as a critical study, on a world basis is made of the species whic have been ascribed to this genus, it cannot be determined how many are truly congeneri with the type species. The genus as understood below comprises small, mostly broad drab, leafhoppers which have an evenly rounded face, an extensive post-clypeus, margina ocelli and lack antennal ledges. Sometimes the frontal region, which is situated on th crown of the head, is distinct from the post-clypeus, and the latter may extend laterally ont the crown.

Type species—*Cicada pulicaris* Fallen (Palaearctic).

The most abundant and widely distributed representative of this genus in bot Australia and New Zealand is *D. taedius* and this may well be an introduced species in bot countries.

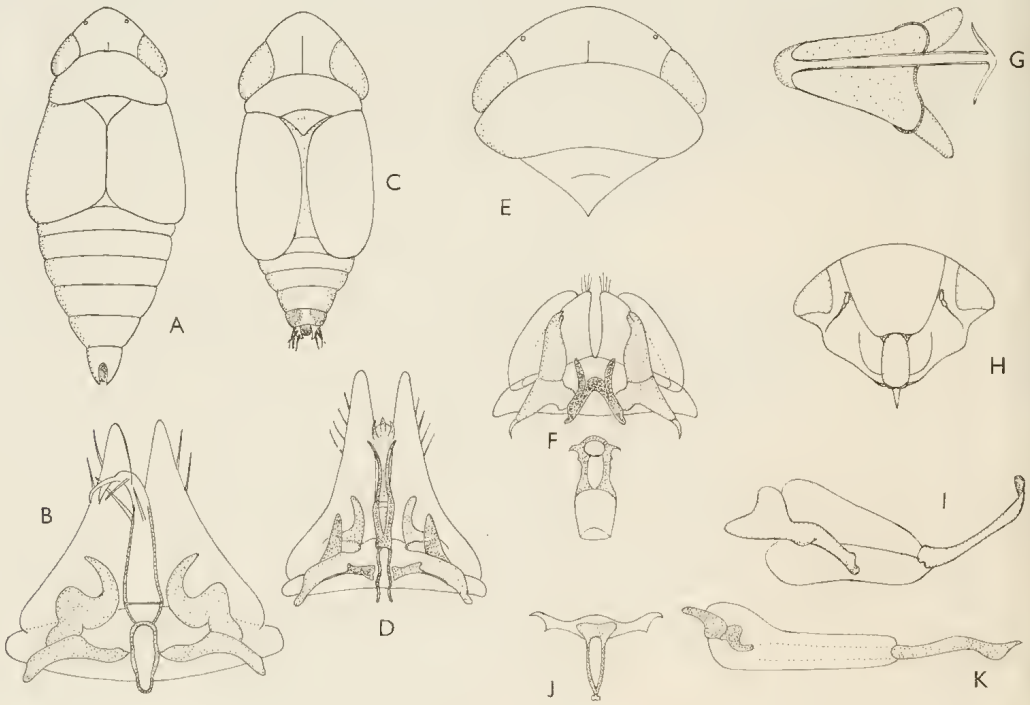

Fig. 36: A, *Deltocephalus aristarche;* B, *D. aristarche*, male genitalia; C, *Deltocephalus perparvus;* D, *D. perparvus*, male genitalia; E, *Deltocephalus centralis*, head and thorax; F, *Deltocephalus taedius*, male genitalia; G, *Deltocephalus viridellus*, aedeagus; H, *Deltocephalus centralis*, face of head; I, *Alodeltocephalus draba*, subgenital plate and paramere; J, *Alodeltocephalus longuinquus*, aedeagus; K, *A. longuinquus*, subgenital plate and paramere.

Deltocephalus taedius (Kirkaldy) (comb.nov.)

(Fig. 36, F)

Phrynomorphus taedius Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 326.

Deltocephalus montanus Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 16 (syn.nov.).

(nec.) *Deltocephalus montanus* Distant, 1908, Faun.Brit.Ind.Rhyn. 4: 384.

A highly variable species of wide distribution in Australia and New Zealand. ength, ♂, 3·2-4·5 mm. General coloration pale brown, or with a blackish appearance. oth sexes of a population may be concolorous with each other or the ♂ may be blackish nd the ♀ pale brown. The tegmina may not extend as far as the apices of the abdomen n either sex or they may extend beyond it. Face of head, either anteriorly pale yellowish-rown, the fronto-clypeus blackish, or entirely pale brown or predominantly black. Post-lypeal muscle impressions not extending onto the crown. Crown of head and thorax pale r dark brown mottled with dark brown or black. Tegmen entirely pale hyaline brown, r, with the veins, which are yellowish, or whitish, margined narrowly or broadly with black, r with the cells largely black. Male genitalia with broad triangular sub-genital plates, ne pygophore with a sword-shaped process and the aedeagus shorter than the basal onnective (Fig. 36, F).

ype Location—H.S.P.A., Honolulu.

ype Locality—Sydney, New South Wales.

nown distribution elsewhere—Widely distributed in Australia and New Zealand.

ollected on—Grasses.

Deltocephalus arunda Jacobi

eltocephalus arunda Jacobi, 1909, Faun.S.W.Aust., Michaelsen and Hartmeyer 2: 343.

Length, ♀, 4·5 mm. General coloration, dirty reddish-yellow. "Crown of head omewhat shorter than the shortest distance between the eyes. Tegmen hyaline, extending lightly beyond the last abdominal tergite; base and apex of claval suture white; a narrow blackish-brown transverse bend in the proximal half of the corium."

Type Location—Unknown.

Type Locality—Moora, Western Australia.

Deltocephalus decoloratus Evans

Deltocephalus decoloratus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 148.

Length, ♂, 3·8 mm. Face of head with pale brown muscle impressions on the ronto-clypeus. Crown longest in the centre, scutellum with a row of 4 dark spots anteriorly nd two spots posteriorly. Tegmen pallid, apically grey; veins white, bordered with grey.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Deltocephalus dedarensis Evans

Deltocephalus dedarensis Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 147.

Length, ♂, 3·6 mm. Face of head orange-yellow, fronto-clypeus darker in colour. Crown, orange-buff, longer in the centre than against the eyes. Pronotum and scutellum concolorous with the crown. Tegmen pale hyaline brown, apically narrow. Ventral surface of thorax, and abdomen, and legs, pale orange-yellow.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Deltocephalus lotis Kirkaldy

Deltocephalus lotis Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 56.

Length, ♀, 3·6 mm. General coloration evenly pale yellowish-brown. Tegmina reaching to about half the length of the insect, obliquely transverse apically. "Vertex piceous with a thin median longitudinal testaceous line, basal half testaceous with 2 big piceous spots, a short transverse testaceous line middle of apical half. Face piceous; frons with curved concentric lines on each side of the middle. Tegmina testaceous subopaque with a narrow piceous margin to the veins on both sides. Greatest width of vertex about the same as the length; vertex flattish, nearly rectangular apically, a little depressed basally. Vertex and frons acute-angled in profile."

Type Location—H.S.P.A., Honolulu.

Type Locality—Mittagong, New South Wales.

Deltocephalus lucindae Kirkaldy

Deltocephalus lucindae Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 58.

Length, ♂, 3·9, ♀, 5 mm. General coloration brown. Crown with a pair of black apical markings and obscure yellow-brown markings continuing onto the pronotum. Tegmen evenly hyaline brown; veins pale brown.

Type Location—H.S.P.A., Honolulu.

Type Locality—Lucinda, Queensland.

Deltocephalus coronifer Marshall*

(Fig. 34, N, O)

Jassus coronifer Marshall, 1866, Ent.Mon.Mag. 2: 265.

Deltocephalus hospes Kirkaldy, 1904, Entom. 37: 177 (syn.nov.).

Phrynomorphus hospes (Kirkaldy) 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 60.

Divitiacus primus Distant, 1918, Faun.Brit.Ind. 7: 59 (syn.nov.).

Deltocephalus (*Insulanus*) *hospes*, Kirkaldy, Linnavuori, 1960, Act.Ent.Fenn. 15: 45.

Length, ♂, ♀, 3-4 mm. General coloration very pale brown. A highly variable species. Crown of head roundly acute. Anterior margin with a broken, brown stripe, which may consist of a row of dark brown spots, or, a broad, dark brown band with oval, or round spots. Tegmen pallid yellowish with a few indistinct brown markings; some cells, particularly against the costal margin, and apically, may be suffused, entirely, or in part, with smoky-brown; veins white. Male genitalia as in Fig. 34, O.

Type Location—Unknown.

Type Locality—Esher, England.

Collected on—Grass.

Known distribution elsewhere—This European species is of widespread occurrence in Australia.

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* It is possible that this is a synonym of *Deltocephalus distinctus* Motschulsky, 1859.

Deltocephalus aristarche (Kirkaldy) (comb.nov.)

(Fig. 36, A, B)

Driotura aristarche Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 59.

Length, ♂, 2-2·4 mm; ♀, 2·5-3 mm. Face of head evenly pale brown, or pale yellowish-brown with brown or black muscle impressions. Tegmen reduced, approximately rectangular in shape, extending to half the length of the whole insect, ivory, faintly, and partially, suffused with brown, or almost entirely dark brown. Abdomen, dorsal surface, irregularly mottled with pale yellowish-brown and dark brown. Male genitalia as in Fig. 36, B.

Type Location—H.S.P.A., Honolulu.

Type Locality—Mittagong, New South Wales.

Known distribution elsewhere—Port Stephens, Dungog (New South Wales).

Deltocephalus perparvus Kirkaldy

(Fig. 36, C, D)

Deltocephalus perparvus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 330.

Length, 2·3 mm. "Pale yellowish-testaceous. Vertex distinctly longer medianly than at eyes, triangularly rounded in front, margin in front of eyes straight. Vertex somewhat flat, a large rounded depression on each side of the middle line. Clypeus as wide anteriorly as frons posteriorly, which very gradually widens at clypeus, extending anteriorly beyond base of clypeus, posteriorly nearly touching margin of genae. Pronotum short, anteriorly arched, posteriorly slightly emarginate. Tegmina short, reaching only to half the length of the abdomen without appendix; venation obscure. Clavus nearly as large as the apically rounded corium. Wings minute."

Type Location—H.S.P.A., Honolulu.

Type Locality—Mittagong, New South Wales.

Known distribution elsewhere—Sydney, New South Wales.

Deltocephalus polemon Kirkaldy

Deltocephalus polemon Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 56.

Length, ♂, ♀, 3·5 mm. "Vertex testaceous with a faint olivaceo-fuscous stripe on each side of the median line. Pronotum testaceous with 3 longitudinal pale olive-fuscous stripes on each side, the innermost broad and continuing onto the scutellum. Tegmina dilute yellowish-cinereous; veins whitish-testaceous narrowly and irregularly margined with fuscous; apical cells mostly dark fuscous, the first and second apical veins whitish. Male, valve short, triangular; plates little longer than the valve, the two taken together deeply emarginate angularly in the middle; pygophore more than twice as long medially as the plates."

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Deltocephalus chlorippe (Kirkaldy) (comb.nov.)

Phrynomorphus chlorippe Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 60.

Length, ♂, 3·3 mm. General coloration evenly bright yellow. Face of head, black, brown, or pale brown. Crown approximately triangular, but anteriorly not acute. Tegmen short, not reaching to apex of abdomen, hyaline-yellow. Hind wings reduced. Dorsal surface of abdomen in ♀, anterior two-thirds, black; posteriorly yellow.

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Known distribution elsewhere—Brisbane (Queensland).

Deltocephalus pullatus Evans

Deltocephalus pullatus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 148.

Length, ♀, 4 mm. Face of head with a pattern of regular bold, black markings. Crown longer in the centre than against the eyes, pale brown with transverse and curved black stripes. Pronotum anteriorly yellowish-brown, posteriorly grey with a regular pattern of brown markings. Scutellum pale brownish-yellow with black markings, muscle impressions apricot. Tegmen whitish hyaline, margins of each cell suffused with brown.

Type Location—British Museum.

Type Locality—Yanchep, Western Australia.

Known distribution elsewhere—Kiata (Victoria).

Deltocephalus centralis sp.nov.

(Fig. 36, E, H)

Length, ♀, 4·6 mm width across eyes, 1·7 mm. A broad species, pale yellowish in colour, mottled with pinkish-orange. Face of head yellowish mottled with pink, or pale yellow mottled, to a varying extent, with black. Crown, either of equal length with the eyes, or slightly longer in the centre, yellowish, mottled with orange-pink. Pronotum concolorous with the crown. Scutellum yellow, or pinkish, sometimes with small black, lateral markings. Tegmen, with complete venation including 3 cross-veins, m-cu, hyaline-grey with sparse irregular brown markings; veins white with orange-pink markings. An apparently constant feature is a series of small, dark brown markings against the costal margin of the tegmen.

Holotype ♀ from Standley Chasm, McDonnell Ranges, Central Australia (coll. A. Musgrave 6/39) in the Australian Museum. This species has been described, in spite of lack of male specimens for genitalia examination, because of the interest provided by the locality of its occurrence.

Deltocephalus viridellus sp.nov.

(Fig. 36, G)

Length, ♂, 3, ♀, 4 mm. General coloration, greenish-yellow. Face of head, ante-clypeus, lora and maxillary plates, pale brownish-yellow; lora and ante-clypeus posteriorly, margined with brown. Post-clypeus yellow with transverse black stripes. Crown longer in the centre than against the sides and almost equal to the combined length of the pronotum

and scutellum, pale greenish-yellow, with a triangular frontal area bordered anteriorly by the curved hind margins of the post-clypeus, posteriorly, by a transverse postfrontal suture. Tegmen pale hyaline greenish-yellow; veins concolorous with the rest of the tegmen. Male genitalia as in Fig. 36, G.

Holotype ♂ and *Allotype* ♀ from Mt Kosciusko, New South Wales, 6,500 ft (collected J.W.E., 6/62) in the Australian Museum.

Deltocephalus dorsalis Motchulsky

(Fig. 34, I, T)

Deltocephalus dorsalis Motchulsky, 1859, Etud.Ent.1859: 114.

Deltocephalus dorsalis Motchulsky, Distant, 1908, Faun.Brit.Ind. 4: 380.

Length, ♂, ♀, 3-4 mm. This species may be recognized by the characteristic tegminal markings. Male genitalia as in Fig. 34, T.

Type Location—Moscow.

Type Locality—Colombo, Ceylon.

Known distribution elsewhere—India, Ceylon, Borneo, Japan, Brisbane (Queensland).

The above genus clearly lacks close affinity with other species ascribed to this genus, but its correct position can only be determined by a study of the Oriental fauna.

Alodeltocephalus gen.nov.

Small *Deltocephalus*-like leafhoppers distinguished by the possession of long sclerotised clasping processes arising from the apices of the subgenital plates.

The face of the head is wider than long and the transverse muscle impressions on the fronto-clypeus, which extend laterally onto the crown, are well defined. The ocelli are on the crown in alignment with the apex of the coronal suture and adjacent to the eyes and the apex of the crown is broadly acute. The tegmina, which are apically broad, do not completely cover the genital segments, and the apical cells are approximately square.

Type species—*Phrynomorphus longuinquus* Kirkaldy.

Alodeltocephalus longuinquus (Kirkaldy) (comb.nov.)

(Fig. 36, J, K)

Phrynomorphus longuinquus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 326.

Deltocephalus obliquus Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 16 (syn.nov.).

Length, ♂, ♀, 3-3·5 mm. General coloration, pale brown. Tegmen sometimes with white and black markings. Male genitalia as in Fig. 36, J, K.

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Known distribution elsewhere—widely distributed in Australia and New Zealand.

Alodeltocephalus draba sp.nov.

(Fig. 36, I)

Length, ♂, ♀, 3·2 mm. Differs from the type species in the slightly greater extension laterally of the post-clypeus onto the crown of the head and in the considerably more extensive apical processes of the subgenital plates which are carried in a crossed, instead of a vertical, position. Male genitalia as in Fig. 36, I.

Holotype ♂ and *Allotype* ♀ from Forrest, Victoria (coll. J.W.E., 3/63) in the Australian Museum.

Lonatura Osborn and Ball

Lonatura Osborn and Ball, 1898, Proc.Davenport Acad.Sci. 8: 83.

Since the type specimen of the species described below is unavailable, it has been impossible to determine its generic position with certainty. Consequently, no description is given of the genus. The type species, *L. catalina*, like *L. austrina* is a minute insect and is known in a brachypterous and in a fully winged form.

Lonatura austrina Kirkaldy

Lonatura austrina Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 62.

Length, 1·9 mm. "Head, pronotum and scutellum pale yellowish the frons with a pale ferruginous radiating pattern. Tegmina pale olive green, the veins a little yellow, a broad smoky apical band. Abdomen black, the last segment white, pygophor white and black. Legs yellowish-brown soiled with fuscous."

Type Location—H.S.P.A., Honolulu (missing).

Type Locality—Sydney, New South Wales.

Known distribution elsewhere—Bundaberg (Queensland).

Selenocephalini

Carvaka Distant

Carvaka Distant, 1918, Faun.Brit.Ind. 7: 40.

The species described below is only tentatively ascribed to this genus, hence no generic description is provided.

Type species—*Carvakta picturata* Distant.

Carvaka fulvida sp.nov.

(Fig. 32, I)

Length, ♀, 6 mm. Face of head wider than long, the labium short, terminating between the fore femora. Ante-clypeus dark brown, fronto-clypeus ochreous-brown except for an antero-medial dark brown area and a transverse dark brown bar posteriorly; remainder of face, pale parchment-yellow. Ocelli on a bright yellow marginal rim adjacent to, but not in contact with, the eyes. Crown of head approximately two-thirds the length of the pronotum, longest in the centre, anteriorly dark brown; posteriorly pale yellowish-brown with a broken posterior, pale brown stripe; tegmen hyaline bronze or brown except for the costal area which is vitreous; veins brown.

Holotype ♀ from the Bunya Mountains, Queensland (coll. N. Geary, 21/1/38), in the Australian Museum.

The above species has been described on the basis of a single specimen as it is the sole representative of this tribe to be recorded from Australia. It is possible that *Carvaka* has been incorrectly ascribed to the Selenocephalini and for this reason the illustration of the head of *C. fulvida* has been placed on the same plate as the one in which the heads of representatives of the Jassinae and Penthimianae are also illustrated.

Platymetopiini

Dryadomorpha Kirkaldy

Dryadomorpha Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 335.

"Vertex acutely produced in front of the eyes, a little longer than wide at the base, slightly concave, basal half sulcate longitudinally; longitudinally finely striate; anterior margin of head acute. Eyes large, not forming part of the curve of the head. Ocelli very small, immediately in front of the acute margin of the head, nearly midway between eye and apex of vertex. Face angularly convex, diamond shaped, frons elongate, subconstricted at the antennal articulations. Clypeus fused with frons, widening posteriorly, posterior margin slightly notched in middle, reaching beyond posterior margin of genae. Lorae wider than clypeus anteriorly, not nearly touching posterior margin of genae. Posterolateral margin of face oblique, not angulate almost direct between eye and clypeus. Antennae long, reaching at least beyond last sternite. Pronotum finely striate transversely, anteriorly arched, lateral margins evanescent. Scutellum a trifle wider than long. Venation of tegmen indistinct."

Type species—*Dryadomomorpha pallida* Kirkaldy.

Dryadomorpha pallida Kirkaldy

(Fig. 37, A1, A2)

Dryadomorpha pallida Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 336.

Length, ♀, 7 mm. "Pale golden yellow, eyes brownish red. Last sternite of female short, posterior margin slightly notched; pygofers marked with a groove on each side."

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Giffardia Kirkaldy

Giffardia Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 336.

"Head elongate, tapering; vertex longer than wide across the eyes, about five or six times as long as wide between eyes at base, prolongation elongate-triangular, flat, porrect or slightly declivous towards the apex, longitudinally carinate. Frons elongate, a little more than four times as long as wide between antennae. Clypeus a trifle wider at apex than at base, a little wider than the lorae, which do not nearly touch its posterior margin. Eyes large, elongate, suboblique not included in the curve of the head. Ocelli small, on the

anterior margin of the head, a little remote from the eyes. Antennae elongate, socketted at about one-third of the length of the eyes. Pronotum arched anteriorly, pronotum and scutellum longitudinally carinate. Tegminal venation simple, four discoidals and five apical."

Type species—*Giffardia dolichocephala* Kirkaldy.

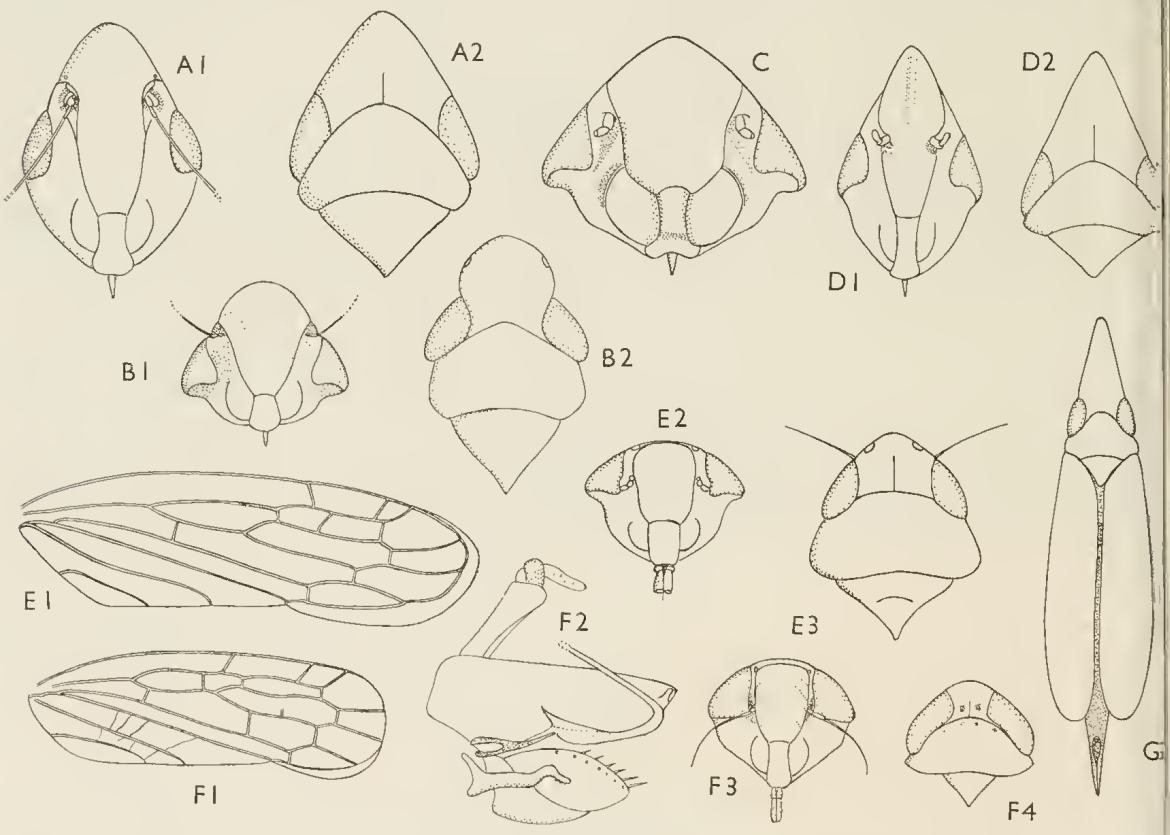

Fig. 37: A1, *Dryadomorpha pallida*, face of head; A2, *D. pallida*, head and thorax; B1, *Lamia placida*, head; B2, *L. placida*, head and thorax; C, *Euleimonios flavidiventis*, head; D1, *Platymetopius australis*, head; D2, *P. australis*, head and thorax; E1, *Inghamia dayi*, tegmen; E2, *I. dayi*, head; E3, *I. dayi*, head and thorax; F1, *Amemolua hanuala*, tegmen; F2, *A. hanuala*, male genitalia; F3, *A. hanuala*, head; F4, *A. hanuala*, head and thorax; G, *Giffardia dolicocephala*.

Giffardia dolichocephala Kirkaldy

(Fig. 37, G)

Giffardia dolichocephala Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 336.

Length, ♂, 5·5-6·5 mm; ♀, 8·2 mm. "More or less pale yellowish testaceous, a longitudinal brownish line from apex of vertex to posterior margin of scutellum, the keel on these parts being often pale and the crown line being more or less interrupted, sometimes irregularly widening on the vertex. On each of the genae is a thin brown smudged line,

uniting anteriorly on the frons. Tegminal veins whitish, whole internal margin smoky, as also the small spots, one on each side of the second apical vein. Tegmina in female not extending to apex of abdomen and in male beyond abdomen."

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Collected on—Grasses.

Platymetopius Burmeister

Platymetopius Burmeister, 1838, Gen.Ins. 1: pl. 14.

The face of the head is diamond shaped, longer than wide and slopes steeply at the sides. The antennae are very long, antennal ledges absent and there are prominent circular basal antennal pits. The ocelli are on the face of the head, close to the hind margin and situated midway between the eyes and the apex of the head. The crown of the head is narrowly acute and approximately equal in length to the combined length of the pronotum and scutellum.

Type species—*Cicada undata* De Geer (Europe).

This species is described as new since it is the first representative of the genus to be described from Australia. Doubtless, a critical study of the Platymetopiini, on a world basis, would show the need for generic separation of Australian from European insects. Until this is done, it is however preferable to refer such species as this to well known genera, as has been done, for example, within the Idioccrinae, rather than to create new genera for their special reception.

Platymetopius australis sp.nov.

(Fig. 37, D1, D2)

Length, ♂, 5, ♀, 6·5 mm. General coloration, evenly yellow (probably green when alive).

Holotype ♂ and *Allotype* ♀ from Wyndham, north-west Australia (coll. E.C.B. Langfield, 8/56), in the Australian National Insect Collection, Canberra.

Oceanopona Linnavuori

Oceanopona Linnavuori, 1960, Ins.Micronesia 6 (5): 299.

Type species—*Oceanopona croceipennis* Linnavuori (Eastern Caroline Island).

A single specimen of a species, which apparently belongs to this genus, has been seen. This was taken in a light-trap at Darwin, North Australia. Linnavuori ascribes this genus to the tribe Paraboloponini which he states is distributed through Japan and Micronesia. As it is uncertain in what characters the Paraboloponini differ from the Platymetopiini the genus is tentatively ascribed to the latter tribe.

The species in the two genera which follow are of uncertain relationships and are only tentatively included in the Deltocephalinae.

Anemolua Kirkaldy

Anemolua Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 329.

The face of the head, which is transversely convex, is as long as wide. The ante-clypeus is long and widest apically. The sides of the fronto-clypeus, posterior to the antennae, are close to the eyes.

On the crown of the head the length of each eye is greater than the width of the hind margin of the head between the eyes. The tegmina are apically broad and have wide appendices and the venation is slightly reticulate.

Type species—*Anemolua hanuala* Kirkaldy.

This is an anomalous genus and has some seeming resemblance to *Malagasiella* Evans, and also to *Stegelytra* Mulsant and Rey.

Anemolua hanuala Kirkaldy

(Fig. 37, F1-4)

Anemolua hanuala Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 329.

Length, ♂, ♀, 3·8-5 mm. Face of head, brown. Crown, pale brown with a median anterior brown marking and a pair of oval dark brown markings posteriorly. Pronotum pale brown with obscure pale brown markings and 6 dark brown spots close to the anterior margin. Scutellum pale brown with 4 darker spots. Tegmen pale brown with irregular whitish areas; veins white. In the ♀, the abdomen extends beyond the folded tegmina and the ovipositor is very long. Male genitalia as in Fig. 37, F2.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Inghamia gen.nov.

The face of the head, which is wider than long slopes steeply towards the sides. The labium is short and terminates between the fore trochanters. The ante-clypeus is rectangular, the lora broad and the maxillary plates posteriorly emarginate. The fronto-clypeus, which is convex, is completely enclosed by continuous epicranial and frontal sutures. The eyes are very large and the interior margin of each eye is indented adjacent to the antennae. The antennae, which extend considerably beyond the margin of the face, lack overhanging ledges. The ocelli, which are visible in both facial and dorsal aspect, are adjacent to the hind margin of the fronto-clypeus. The crown is broadly arrow-shaped and the coronal suture extends almost as far as the anterior corners of the eyes. The pronotum is laterally long and considerably wider posteriorly than anteriorly. The tegmina, which overlap apically, have wide appendices. The hind tibiae have 3 rows of long spines interspersed with short spines.

Type species—*Inghamia dayi* sp.nov.

Inghamia resembles *Anemolua* Kirkaldy in general characteristics. It differs in proportions; thus the eyes are smaller, the crown and pronotum more extensive and the tegmina longer in relation to the abdomen.

Inghamia dayi sp.nov.

(Fig. 37, E1-3)

Length, ♀, 5·2 mm. General coloration yellowish-brown. Face of head brownish-yellow, hind margin of fronto-clypeus narrowly dark brown. Crown apically dark brown, or black; posteriorly brownish-yellow with brown markings. Scutellum, brownish-yellow, lateral muscle impressions brown and with a pair of brown spots. Tegmen hyaline brownish-yellow, postero-apically smoky-brown; a white wax secretion against the costal margin medially; veins narrowly margined with brown.

Holotype ♀ from Ingham, Queensland, in the Australian Museum. Described from 10 females taken in a light trap, April, 1960 (coll. M. Day).

Macrostelini

The tribe comprises small, long, narrow, leafhoppers, green, yellow or reddish-brown in colour, or sometimes whitish with pink markings.

They are of widesprcad distribution throughout the world and for the most part, lack distinctive characteristics (apart from those furnished by the male genitalia). Many species feed on grasses.

The true identity of some of thc species recorded from Australia must remain uncertain until such times as comprehensive collections are assembled and a critical study undertaken of the group as a whole.

Key to the Genera of the Macrostelini represented in Australia

1. Yellow insects with 2 large black spots on the crown..... **Cicadulina** China
   Not as above.
2. Crown of head of even length throughout..... **Balclutha** Kirkaldy
   Crown of head longer in the centre than against the eyes.... **Nesoclutha** Evans

Balclutha Kirkaldy

Gnathodus Feiber, 1806, Vcrh.Zool.-bot.Ges.Wien. 16: 505 (preoccupied).

Balclutha Kirkaldy, 1900, Entomologist, 33: 243 (nom.nov.).

Nesosteles Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1: 343.

Eusceloscopus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 147 (syn.nov.).

The labium is short, terminating at the base of the hind coxae, the ante-clypeus extends anteriorly beyond the lora and the face is emarginate below the eyes. The antennae are almost as long as the width of the head. The ocelli are marginal, closely adjacent to the eyes. The pronotum is wide laterally and the anterior margin frequently transverse. The tegmina are long and narrow, vein R is unusually close to the costal border and may be proximally indistinct and the tegmina overlap considerably apically. In the wings Rs and M 1 + 2 usually terminate as a single vein.

The male genitalia have well developed pygophores, which may have ventral accessary processes and the aedeagus is long, narrow and curved.

Type species—*Cicada punctatus* Thunberg (Sweden).

Balclutha aurantiigera (Kirkaldy)

Nesosteles aurantiigera Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 65.

Length, 4 mm. "Head pronotum and scutellum pale greenish-yellow. Tegmina and legs orange-red, the former with conspicuous whitish veins, the apical cells hyaline. Vertex rounded in front, less than half the length of the pronotum, about as long medianly as at the eyes."

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

(This may be a synonym of *B. sanguinescens*).

Balclutha chloe (Kirkaldy)

Nesosteles chloe Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 66.

Length, ♂, ♀, 4 mm. Bright green. Tegmina hyaline, veins green, vertex roundly angulate anteriorly.

Type Location—H.S.P.A., Honolulu.

Type Locality—Redlynch, Queensland.

Balclutha dryas (Kirkaldy)

(Fig. 38, E)

Nesosteles dryas Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 65.

Length, ♂, ♀, 4·5 mm. Head testaceous, more or less suffused with pale orange brown, a short longitudinal suture and a lateral impression, reddish brown. Pronotum creamy with three or five thin orange-brown longitudinal lines of which the 3 central one are continued more widely onto the scutellum. Tegmina pale hyaline, creamy; veins white the costal-apical ones sometimes brownish.

Male genitalia, pygophores with large boot-shaped ventral processes (Fig. 38, E).

Type Location—H.S.P.A., Honolulu.

Type Locality—Redlynch, Queensland.

Known distribution elsewhere—Perth, Western Australia.

(This is possibly a synonym of *B. rosea* (Scott)).

Balclutha glauca (Kirkaldy)

Nesosteles glauca Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 344.

Length, 3·5 mm. "Pale yellowish-testaceous with a tinge of grey. Tegmina and wings pale milky subhyaline. Abdomen, pale sordid yellowish, more or less black discally."

Male genitalia of specimens tentatively identified with this species lack pygophore processes.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

(This is possibly a synonym of *B. incisa* (Matsumura)).

Balclutha phryne (Kirkaldy)

Nesosteles phryne Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 66.

Length, 4 mm. "Creamy testaceous, basal four-fifths of abdomen dark fuscous. Tegmina hyaline-milky, veins creamy. Vertex as long as wide between the eyes, nearly as long as the pronotum, angularly produced, nearly twice as long in the middle as at eyes."

Type Location—H.S.P.A., Honolulu.

Type Locality—Mittagong, New South Wales.

Balclutha sanguinescens (Kirkaldy)

(Fig. 38, B1, B2)

Nesosteles sanguinescens Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 344.

Length, ♂, ♀, 4-5 mm. General coloration, crimson and white. Head testaceous, yellowish-testaceous, or, pinkish; crown with 3 narrow, crimson, longitudinal lines. Pronotum testaceous, or pinkish, with three or five longitudinal crimson lines. Tegmen crimson-red, varyingly obscurely suffused with brown and white; veins white. Male genitalia, pygophores with bifid processes. (Fig. 38, B2).

Type Location—H.S.P.A., Honolulu (missing).

Type Locality—Brisbane, Queensland.

Balclutha sordidior (Kirkaldy)

Nesosteles sordidior Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 344.

Length, 4·5 mm. "Closely allied to *N. sanguinescens* but a trifle smaller and colour different, the sanguineous area being paler and browner, while the frons is not striped. Last segment of female roundly emarginate."

Type Location—H.S.P.A., Honolulu.

Type Locality—Brisbane, Queensland.

(This is possibly identical with *B. sanguinescens*).

Balclutha hebe (Kirkaldy)

(Fig. 38, F1, F2)

Nesosteles hebe Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1: 343.

Balclutha hebe (Kirkaldy), Linnavuori, 1960, Ins.Micronesia 6 (5): 340.

Empoasca athertoni Evans, 1941, Proc.Roy.Soc.Queensland 52: 12 (syn.nov.).

Length, ♂, ♀, 3·5-4 mm. General coloration pale yellow. Pronotum palest anteriorly; scutellum whitish with lateral muscle impressions and a median stripe, yellow. Male genitalia, pygophore with a serrate lateral process (Fig. 38, F2); aedeagus characteristic, not evenly narrow and curved (Fig. 38, F1).

Type Location—H.S.P.A., Honolulu.

Type Locality—Viti Isles, Fiji.

Known distribution elsewhere—Moree (New South Wales); Perth (Western Australia).

Balclutha yanchepensis (Evans) (comb.nov.)

(Fig. 38, C1-3)

Eusceloscopus yanchepensis Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 147.

Length, ♂, 4 mm. General coloration evenly brown or deep purplish-brown. Head, reddish-brown, eyes black, ocelli red; crown of even length throughout. Pronotum and scutellum, reddish-brown. Tegmen, hyaline brown, except for the 2 cells adjoining the appendix, which are smoky-hyaline; veins pink. Male genitalia as in Fig. 38, C3.

Type Location—British Museum.

Type Locality—Yanchep, Western Australia.

Known distribution elsewhere—Gretna (Tasmania); Ingham (Queensland).

Nesoclutha Evans

Nesoclutha Evans, 1947, Mem.Nat.Mus.Vict. 15: 126.

Resembles *Balclutha* in venational characteristics but differs in having the crown longer in the centre than at the sides and in having a shorter and broader aedeagus.

Type species—*Nesoclutha obscura* Evans.

Nesoclutha pallida (Evans) (comb.nov.)

(Fig. 38, D)

Eusceloscopus pallidus Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 147.

Nesoclutha obscura Evans, 1947, Mem.Nat.Mus.Vict. 15: 126 (syn.nov.).

Length, ♂, 4·2-5 mm. General coloration (dried specimens) pale stramineous. Scutellum sometimes white with orange markings. Tegmen hyaline, veins whitish. Male genitalia as in Fig. 38, D.

Type Location—British Museum.

Type Locality—Yanchep, Western Australia.

Known distribution elsewhere—Ingham (Queensland); Melbourne (Victoria).

Collected on—Grasses.

Cicadulina China

Cicadulina China, 1926, Bull.ent.Res. 1743.

The labium terminates at the base of the middle coxae and the ante-clypeus extends anteriorly slightly beyond the lora. The antennae are long and short antennal ledges are retained. The ocelli are marginal and closely adjacent to the eyes. The crown of the head is well developed and slightly longer in the centre than against the eyes and slopes anteriorly. The anterior margin of the pronotum is arched, and the pronotum is narrow laterally. In the tegmina, the basal half of R is indistinct and the appendix is wide.

Type species—*Cicadulina zeae* China (East Africa).

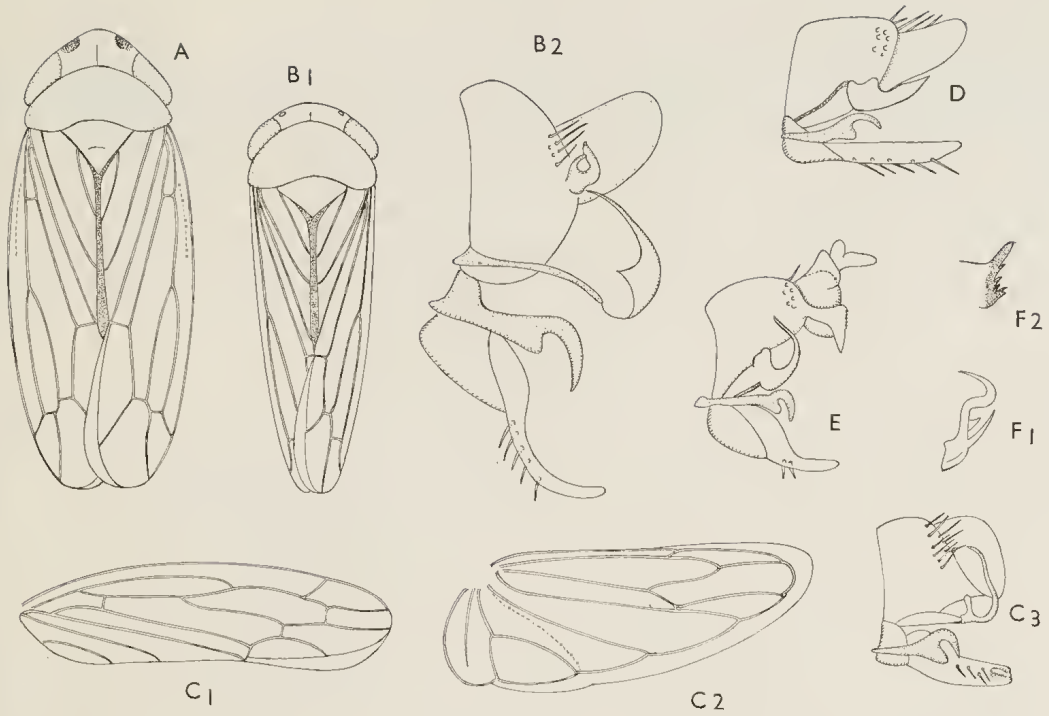

Fig. 38: A, *Cicadulina capitata;* B1, *Balclutha sanguinescens;* B2, *B. sanguinescens*, male genitalia; C1, *Balclutha yanchepensis*, tegmen; C2, *B. yanchepensis*, wing; C3, *B. yanchepensis*, male genitalia; D, *Nesoclutha pallida*, male genitalia; E, *Balclutha dryas*, male genitalia; F1, *Balclutha hebe*, aedeagus; F2, *B. hebe*, pygophore process.

Cicadulina capitata (Kirkaldy) (comb.nov.)

(Fig. 38, A)

Limotettix capitatus Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 64.

Cicadula bipunctella Matsumura, 1908, Tokyo, Imp.Univ.J.Coll.Sci. 23: 12 (syn.nov.).

Cicadulina bipunctella China, 1926, Bull.Ent.Res. 17: 43.

Cicadulina zeae China, 1926, Bull.Ent.Res. 17: 43.

Cicadula bimaculata Evans, 1940, Proc.Roy.Soc.Queensland 52: 11.

Cicadulina bipunctella (Matsumura) Linnavuori, 1960, Ins.Micronesia 6 (5): 333.

Length, ♂, ♀, 3 mm. General coloration bright yellow. Head yellow, crown with two large black spots. Pronotum and scutellum yellow. Tegmen, pale smoky hyaline.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Known distribution elsewhere—A very widely distributed species which, in Australia, where it is doubtlessly an introduction it occurs in the more northerly parts of the continent.

Incertae sedis

Athysanus negatus F. B. White, 1879, Ent.Mon.Mag. 15: 215.

Length, ♂, ♀, 5 mm. "Pale rufous-brown with no distinct markings; some indistinct spots on the pronotum, spines of the hind tibiae and apex of the tarsi, rather darker, as well as the veins (♀) or some minute specks near the veins (♂) of the tegmina. ♂, back of abdomen black, apical segments testaceous; ♀, back of abdomen pale brown."

Type Location—Unknown.

Type Locality—New Zealand (possibly from Otago). It is possible that the above species is identical with *Scaphetus brunneus*, but this cannot be determined without reference to the type.

Xestocephalinae

This is a group of small leafhoppers of which all representatives have adaptive characteristics associated with myrmecophily although most species apparently live independently of ants. The sub-family, apart from the Palaearctic region, is of universal distribution and very many species occur in Australia.

Key to the Genera of the Xestocephalinae represented in Australia

Oval insects, usually with a distinctive colour pattern; venation distinct .... **Xestocephalus** Van Duzee..

Broad, squat, insects, lacking a distinctive colour pattern; venation obscure..... ..... **Myrmecophryne** Kirkaldy..

Xestocephalus Van Duzee

Xestocephalus Van Duzee, 1892, Trans.Amer.Ent.Soc. 19: 298.

Xestocephalus Van Duzee, 1894, Bull.Buff.Soc.Nat.Sci. 197: 214.

Small insects, pale, or dark brown in colour, usually with yellowish and whitish markings. The second antennal segment is unusually large and extends beyond the interior margin of the eye and may extend beyond the margin of the head. The eyes are unusually small and the ocelli are also reduced. The crown of the head is longest in the centre and the pronotum wide laterally. The tegmina have wax plates situated alongside the costal margin.

Type species—*Xestocephalus pulicarius* Van Duzee (North America).

Xestocephalus sidnicus Kirkaldy

Xestocephalus sidnicus Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 53.

Length, ♂, 3·2 mm. "Blackish-brown. Tegmina fuscohyaline, veins blackish; two or three thin curved transverse fuscous lines in the apical fourth of the tegmina. Vertex roundly angular in front, one half longer in the middle than at the eyes."

Type Location—H.S.P.A., Honolulu (missing).

Type Locality—Sydney, New South Wales.

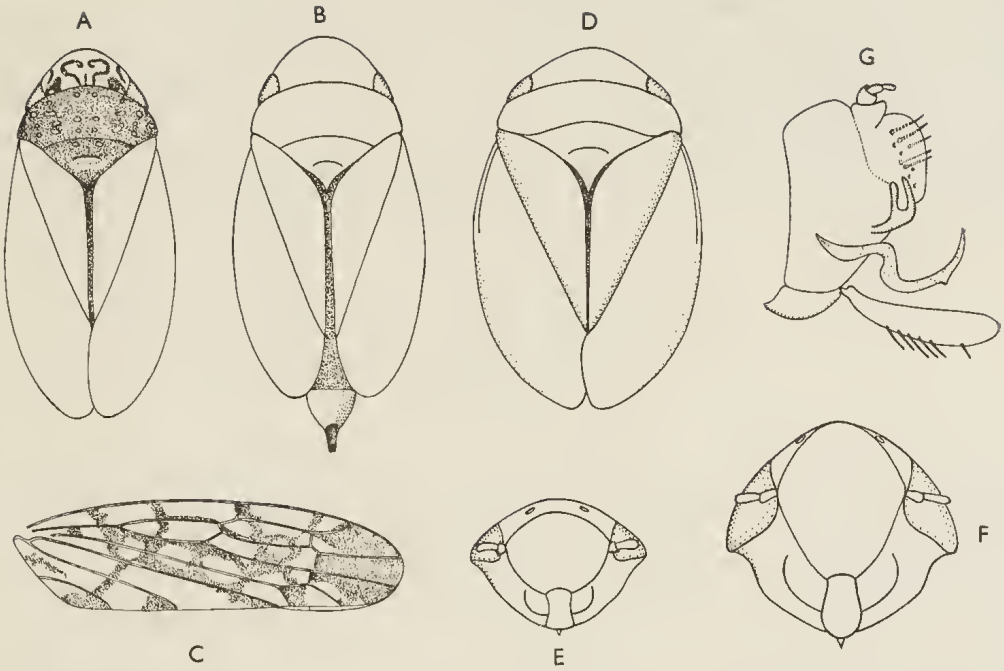

Fig. 39: A, *Xestocephalus australensis;* B, *X. ovalis;* C, *X. magnficus,* tegmen; D, *Myrmecophryne formiceticola ;* E, *Xestocephalus tasmaniensis,* face of head; F, *X. magnificus,* head; G, *X. australensis,* male genitalia.

Xestocephalus australensis Kirkaldy

(Fig. 39, A, G)

Xestocephalus australensis Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 52.

Length, ♀, 3-3·5 mm. Crown of head declivous, pale yellow, with irregular and variable brown markings. Pronotum brown with numerous white spots, some of which are not distinct and separate but merge into adjacent ones. Scutellum brown with 4 white spots. Tegmen, 3 shades of brown in an irregular pattern with a few white spots. Male genitalia as in Fig. 39, G.

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Known distribution elsewhere—Brisbane (Queensland).

Xestocephalus tasmaniensis Evans

(Fig. 39, E)

Xestocephalus tasmaniensis Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 12.

Length, ♂, 2-2·3 mm; ♀, 2·9 mm. General appearance dark brown evenly mottled with pale brown. Face of head, pale, or dark brown, sometimes pale, or mottled brown, posteriorly. Crown with a regular pattern of pale yellowish-brown and dark brown. Pronotum brown with several regularly arranged small pale spots. Scutellum brown with 4 pale spots. Tegmen hyaline, pale or dark brown with numerous regularly arranged pale

hyaline yellowish-brown oval areas; one, or more, of the apical costal pale areas are usually larger than the remainder; sometimes also with a few opaque whitish longitudinal markings.

Type Location—Australian Museum (missing).

Type Locality—Hobart, Tasmania.

Known distribution elsewhere—Darwin (Northern Territory); Ingham (Queensland); Bandon Grove (New South Wales); Perth (Western Australia).

Xestocephalus magnificus sp.nov.

(Fig. 39, C, F)

Length, ♀, 4·8 mm. General coloration, pale yellowish-brown. Head, pale brown, each eye equal in width to half the total width of the crown. Pronotum brownish-yellow, sometimes with 3 dark markings posteriorly. Scutellum yellowish-brown without markings. Tegmen, pale hyaline brownish-yellow with dark brown markings; these may be arranged as a pattern of ovals or be confined to the margin of the tegmen.

Holotype ♀ from Herberton, North Queensland (coll. D. McAlpine 1/58) in the Australian Museum.

X. magnificus differs from all other known Australian species of *Xestocephalus* in its larger size and paler coloration.

Xestocephalus ovalis sp.nov.

(Fig. 39, B)

Length, ♀, 3 mm. General coloration, coffee-brown. Crown of head approximately semi-circular in outline, coffee-brown with several indistinct large, pale circular markings. Pronotum, anteriorly dark brown, posteriorly coffee-brown with indistinct large pale markings. Scutellum dark brown, lacking markings. Tegmen not reaching as far as the apex of the abdomen, pale hyaline-brown mottled with brown and with several narrow, longitudinal white markings.

Holotype ♀, from Wellington, New Zealand (coll. in moss, B. Holloway 4/54) in the Dominion Museum.

Myrmecophryne Kirkaldy

Myrmecophryne Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 461.

Differs from *Xestocephalus* in proportions, being broader and shorter in lacking the typical *Xestocephalus* colour pattern, and in having obscure venation.

Type species—*Myrmecophyryne formiceticola* Kirkaldy.

This genus, which has previously been regarded as a synonym of *Xestocephalus*, is sufficiently distinctive to merit separate recognition.

Myrmecophryne formiceticola Kirkaldy

(Fig. 39, D)

Myrmecophryne formiceticola Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 462.

Length, ♂, 2 mm, ♀, 2·2 mm. General coloration dark brown with a few pale markings on the crown, pronotum and scutellum. Tegmina opaque brown with a small pale area against the costal margin distally.

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Collected—In an ants' nest on sand hills.

Known distribution elsewhere—Innisfail (Queensland).

Typhlocybinae

This group of distinctive, minute, yellow, green, white and red leafhoppers is of universal distribution. They may be distinguished by the absence of any but ante-apical cross-veins in their tegmina. They are particularly abundant, and have been most intensively studied in Europe and North America. The Australian fauna comprises representatives of a few cosmopolitan genera and, as well, an abundance of species which belong to genera which may either be endemic or else of Indo-Malayan origin. The New Zealand typhlocybid fauna, on the other hand, would seem to consist solely of representatives of widely distributed genera.

Typhocybids have not been extensively collected in Australia and for this reason it has not been possible to make a critical study of the generic position of species belonging to supposedly endemic genera. Hence, where possible, species have been assigned previously described genera even although in some instances they may not be congeneric with the type species.

The existing classification of this sub-family has been based largely on venational and to some extent on genitalia characteristics and while these are undoubtedly important, it is possible that other features, in particular head structure, might, if studied, also yield significant information in respect to inter-relationships.

The key that follows is provided in the hope that it may, to some extent, aid generic identification until such time as the Australian representatives of this subfamily receive critical attention. Descriptions of cosmopolitan genera are omitted but particulars of characteristics enabling their recognition may be obtained from the accompanying illustrations.

Key to the Genera of the Typhlocybinae recorded from Australia

1. Antennae not closely adjacent to hind margin of head.....2
   Antennae closely adjacent to hind margin of face.....7

2. (1) In tegmen, Cula extending towards apex of tegmen 3
   In tegmen, Cula, short, directed towards hind margin of tegmen (Fig. 40, M, N)..8

3. (2) In the wing, a marginal vein present 4
   Wing lacking a marginal vein 5

4. (3) Marginal vein of the wing extending completely around the apex of the wing (Fig 40, A) ..... **Dikraneura** Hardy
Marginal vein terminating dorsally at R + M (Fig. 40, C).. **Empoasca** Walsh

5. (3) Pronotum as long as wide, or almost so..... **Pettya** Kirkaldy
Pronotum not as long as wide 6

6. (5) Paramere with a single apical extension, broad and truncate apically.....
..... **Zygina** Fieber
Apex of paramere with a second extension or lobe; "keel" present .....
..... **Erythroneura** Fitch

7. (1) Face of head concave..... **Aneono** Kirkaldy
Face of head flattened, slightly swollen posteriorly..... **Kahaono** Kirkaldy

8. (2) Wing with R + M forming a single vein apically..... **Typhlocyba** Germar
Wing with R + M separate..... **Eupteryx** Curtis

Aneono Kirkaldy

Aneono Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 358.

The face of the head is concave and the hind margin, which is thickened, overhangs and lies at a higher level than the rest of the face. The crown, which is spatulate, is produced in front of the eyes and roundly arched. The antennae arise immediately posterior to the eyes. In the tegmina R + M have a common ante-apical stem, and sometimes Cul, ante-apically, arises from the base of the same stem. The wings have a marginal vein and Cul has 2 branches.

Type species—*Aneono pulcherrima* Kirkaldy.

This genus is related to *Camulus* Distant and *Bolanusoides* Distant.

Aneono pulcherrima Kirkaldy

Aneono pulcherrima Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 359.

Length, ♀, 3 mm. Crown of head orange with a pale, median, longitudinal stripe and sometimes with pale areas laterally. Pronotum orange, sometimes with irregular, anterior pale markings or with a median longitudinal pale stripe, sometimes pinkish laterally. Scutellum reddish with a pair of white spots posteriorly. Tegmen pale hyaline brown with a broad, crimson, sickle-shaped marking extending from the costal margin to the apex of the claval suture and some irregular pale markings on each side of the claval suture. Venation of basal two-thirds of tegmen indistinct, Cul not arising ante-apically from a common stem with R + M.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Known distribution elsewhere—Bundaberg, Queensland.

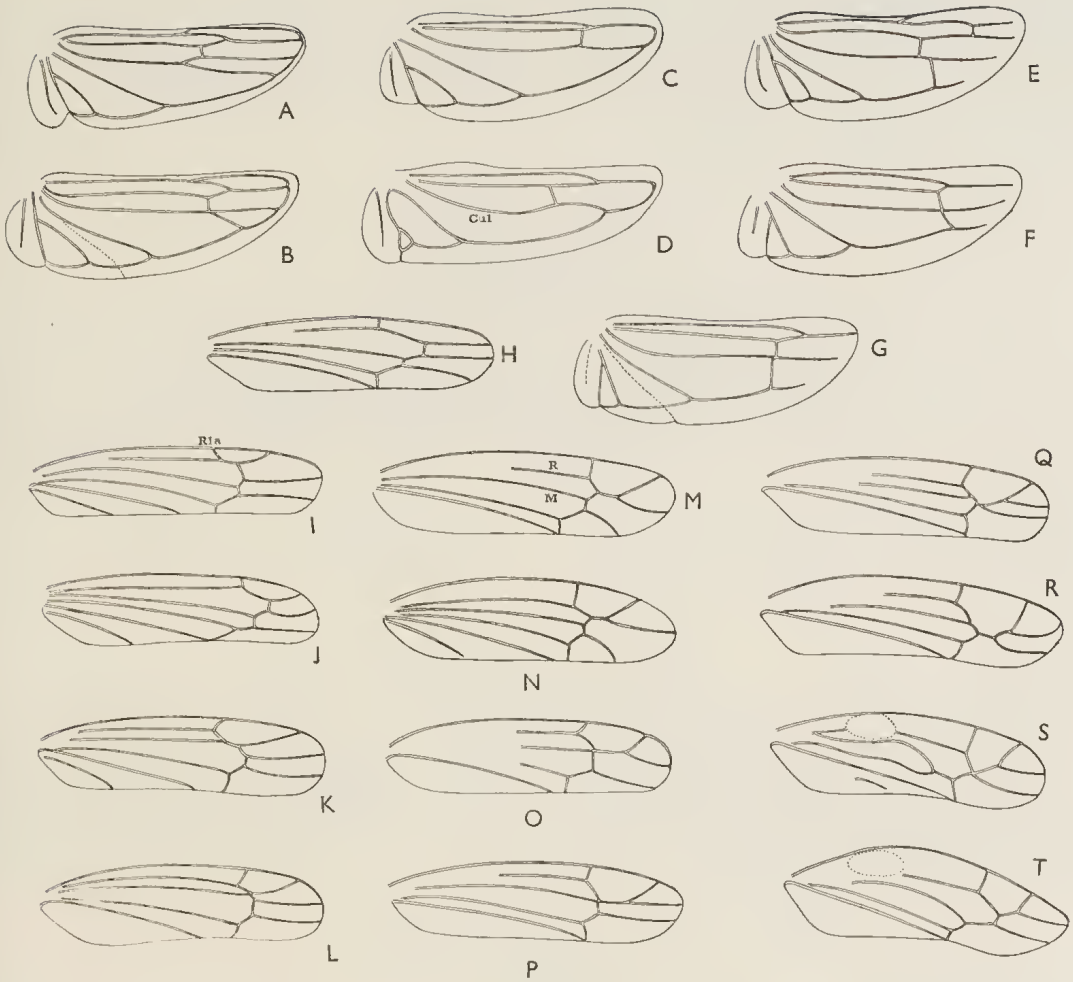

Fig. 40—Wings of: A, *Dikraneura angustata;* B, *Kahaono pallida;* C, *Empoasca australica;* D, *E. picturata;* E, *Eupteryx xlavalis;* F, *Erythroneura ix;* G, *Typhlocyba froggatti.* Tegmina of: H, *Dikraneura angustata;* I, *Erythroneura ix;* J, *Pettya tambourinus;* K, *Empoasca viridigrisea;* L, *E. australica;* M, *Eupteryx clavalis;* N, *Typhlocyba froggatti;* O, *Empoasca picturata;* P, *Kahaono viridis;* Q, *K. pallida;* R, *K. montana;* S, *Aneono australensis;* T, *A. darwinensis.*

Aneono australensis (Kirkaldy) (comb.nov.)

(Fig. 40, S)

Empoa australensis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 363.

Length, ♀, 3·2 mm. Crown of head pale sanguineous with a pale, median, longitudinal stripe. Pronotum pale grey with irregular orange markings. Scutellum anteriorly orange, laterally and posteriorly white with a brown bar on each side and apically. Tegmen, basal two-thirds dark in colour; apical third, pale hyaline brown. In the former area 2 irregular reddish markings with a roughened shiny surface against the costal border, the proximal one is narrowly margined with white and the distal one broadly margined with a dark brown area, which extends to the hind margin of the tegmen; 3 white markings bordered with white ante-apically and a few smaller white markings more proximally

situated. Clavus dark hyaline-brown with a large irregular whitish area, bordered with and interrupted medially by, a reddish area. Cul ante-apically arises from the base of the same stem as R + M. M roundly arched prior to its distal junction with Cul.

Type Location—H.S.P.A., Honolulu.

Type Locality—Brisbane, Queensland.

Aneono venusta Evans

Aneono venusta Evans, 1942, Trans.Roy.Soc.W.Aust. 27: 148.

Length, ♀, 4 mm. Head pinkish, partially suffused with white. Pronotum antero-laterally white, medially grey. Scutellum dark brown apically brownish-yellow. Tegmen with M and Cul separate for their entire length, proximal two-thirds hyaline brown but for the costal area distally which is pink, and irregular white areas; apical third pale hyaline brownish.

Type Location—British Museum.

Type Locality—Dedari, Western Australia.

Aneono darwinensis sp.nov.

(Figs 40, T; 41, P1-3)

Length, ♂, 3, ♀, 3·5 mm. Head and thorax (spirit specimens) pallid. Tegmen with costal wax plate, in part dark pink, in part hyaline-yellowish, sub-apically smoky-brown. Male genitalia as in Fig. 41, P1-P3.

Holotype ♂, and *Allotype* ♀ from Darwin, Northern Territory (coll. light trap, date unknown) in the Australian Museum.

Kahaono Kirkaldy

Kahaono Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 361.

The face of the head is flattened and posteriorly inflated, and the antennae arise close to the hind margin of the eyes. The crown of the head is produced in front of the eyes and roundly arched. In the tegmina R + M have a common ante-apical stem and sometimes Cul, ante-apically, arises from the base of the same stem. The wings have a marginal vein and Cul has 2 branches.

Type specics—*Kahaono hanuala* Kirkaldy.

This genus is only tentatively recognized as distinct from *Aneono* with which it is apparently identical except for the shape of the hind part of the face of the head.

Kahaono hanuala Kirkaldy

Kahaono hanuala Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 361.

Length, 3·8 mm. "Head, pronotum and scutellum sordid testaceous. Tegmina subhyaline, milky; clavus more or less clouded with pale brownish, a milky spot towards the apex. Corium more or less clouded with pale brownish, basally, a brownish curved

line running to apex and giving out 3 brownish lines costally and two or three clavally at more or less regular intervals."

Type Location—H.S.P.A., Honolulu (tegmina of type missing).

Type Locality—Brisbane, Queensland.

Kahaono viridis sp.nov.

(Figs 40, P; 41, L)

Length, ♂, 3·5, ♀, 4·2 mm. General coloration green (live specimens); pale yellowish brown (spirit specimens). Face of head, yellowish or blackish-brown, posterior apex of fronto-clypeus pale yellowish. Tegmen pale yellowish-hyaline, apically sometimes smoky; veins apically, sometimes pink. Ventral surface (mature specimens) black, the metasternum and seventh and eighth abdominal segments, in part, whitish. Male genitalia as in Fig. 41, L.

Holotype ♂ and *Allotype* ♀, from Wilson's Valley, Mt Kosciusko, New South Wales (coll. J.W.E., 1/6/65) in the Australian Museum.

Kahaono montana sp.nov.

(Figs 40, R; 41, M1, M2)

Length, ♂, 3·8, ♀, 4·2 mm. General coloration, pallid (spirit specimens). Tegmen in part, pale hyaline-brown, in part vitreous; veins apically brown, arms of apical Y-vein, very dark brown. Male genitalia, aedeagus as in Fig. 41, M1, M2.

Holotype ♂ and *Allotype* ♀ from Mt Kosciusko, New South Wales, 5,260 ft (coll. J.W.E., 3/63) in the Australian Museum.

Kahaono pallida sp.nov.

(Figs 40, Q; 41, O1, O2)

Length, ♂, 3·2, ♀, 3·9 mm. Face of head dark brown anteriorly and pallid posteriorly, or entirely pallid. Crown and thorax pallid or pink. Tegmen, hyaline with a pink area of varying extent adjacent to the apex of the claval suture and sometimes also around R1. Male genitalia, aedeagus as in Fig. 41, O1, O2.

Holotype ♂ and *Allotype* ♀ from Perth, Western Australia (coll. light trap 3/59) in the Australian Museum.

Kahaono wallacei sp.nov.

(Fig. 41, N)

Length, ♂, 3·2, ♀, 3·8 mm. Head yellow, pronotum anteriorly yellow, posteriorly pink. Scutellum anteriorly yellow, posteriorly china white. Tegmen in part yellow, costal area vitreous, apex pale hyaline brown; clavus entirely pink or pink with a central yellow area. A long irregular brown marking adjacent to apex of the claval suture and sometimes 2 smaller brown markings more proximally situated. Male genitalia, aedeagus as in Fig. 41, N.

Holotype ♂ and *Allotype* ♀, from Perth, Western Australia (coll. M. Wallace, 10/60, on *Eucalyptus calophylla*) in the Australian Museum.

Empoasca Walsh

Empoasca Walsh, 1864, Proc.Boston.Soc.Nat.Hist. 9: 315.

Dialecticopteryx Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 71 (syn.nov.).

Austroasca Lower, 1952, Proc.Linn.Soc.N.S.W. 76: 195 (syn.nov.).

The generic characteristics are furnished by illustrations of the venation of the tegmina and hind wings (Fig. 40, C, K, O).

Lower created the genus *Austroasca* to comprise Australian typhlocybids closely related to *Empoasca*, but which differ in the reduction, or absence, of ventral hook-like processes associated with the tenth abdominal segment in the male. The reason this generic name is not retained is because minor differences in genitalia characteristics are regarded as inadequate for the purpose of generic differentiation.

There are many more synonyms of *Empoasca* Walsh than the ones listed above, but those omitted have not been associated with Australian insects. Lower's publications which contain considerably fuller accounts of Australian species belonging to this genus than are given here should be referred to for identification purposes.

Type species—*Empoasca smaragdula* (Fallen).

Empoasca terrae-reginae Paoli

(Fig. 41, H)

Empoasca terrae-reginae Paoli, 1936, Mem.Soc.Ent.Ital. 15: 13.

Empoasca maculata Evans, 1942, Pap.Roy.Soc.Tasm. 1941: 27.

Austroasca terrae-reginae (Paoli), Lower, 1952, Proc.Linn.Soc.N.S.W. 76: 216.

Length, ♂, 3·3, ♀, 4 mm. Face of head yellow with a broad, white median longitudinal stripe and two white stripes from middle or upper part of face directed diagonally towards lower margin of each eye. Sometimes the stripes are united above to form a broad arrow. Crown produced in a blunt angle, yellow with a median, longitudinal, narrow, irregular white stripe and two suboval lateral white marks midway between eyes, and coronal suture. Pronotum yellow with 5 white marks close to anterior margin. Scutellum yellow with white markings. Tegmen colourless-hyaline with an irregularly shaped brown spot between the arms of Cul. For male genitalia see Lower (1952).

Type Location—British Museum.

Type Locality—Biloela, Queensland.

Collected on—Cotton (See Lower, 1952).

Empoasca alfalfae Evans

Empoasca alfalfae Evans, 1941, Proc.Roy.Soc.Queensland 52: 12.

Austroasca alfalfae (Evans), Lower, 1952, Proc.Linn.Soc.N.S.W. 76: 216.

Length, ♂, 2·7, ♀, 3·6 mm. General coloration, yellowish-green. Head obovately produced. For male genitalia, see Lower (1952).

Type Location—Queensland Museum.

Type Locality—Lockyer, Queensland.

Collected on—Lucerne.

Empoasca australica (Kirkaldy) (comb.nov.)

(Figs 40, C; 41, I)

Dialecticopteryx australica Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 72.

Empoasca bancrofti Evans, 1938, Pap.Roy.Soc.Tasm. 1938: 40 (syn.nov.).

Austroasca bancrofti (Evans), Lower, 1952, Proc.Linn.Soc.N.S.W. 76: 217.

Length, ♂, 4, ♀, 5·2 mm. General coloration yellow with brown markings. Face of head bright yellow with a median oval black spot just above level of antennal bases; coronal, epicranial and frontal sutures complete and well defined. Crown bright yellow with an oval blackish spot behind each ocellus. Pronotum yellowish with a large median, transverse, crescentric brown area. Scutellum medially yellow with a brown spot apically, laterally brown. Tegmen hyaline milky-white with broad anterior and posterior bluish-black bands that do not extend beyond the apex of the claval suture. For male genitalia, see Lower (1952).

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Empoasca bractigera (Lower) (comb.nov.)

Austroasca bractigera Lower, 1952, Proc.Linn.Soc.N.S.W. 76: 215.

Length, ♂, 3·6 mm. General coloration, yellow. Crown of head bright yellow with a faint white stripe on the incomplete coronal suture. Tegmen normal, yellowish and hyaline. For male genitalia, see Lower (1952).

Type Location—Department of Agriculture, Sydney.

Type Locality—Mt Keira, New South Wales.

Empoasca histrionicula (Kirkaldy) (comb.nov.)

(Fig. 41, E)

Cicadula histrionicula Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 361.

Austroasca histrinonicula (Kirkaldy), Lower, 1952, Proc.Linn.Soc.N.S.W. 76: 214.

Empoasca pulcherrima Evans, 1942, Proc.Roy.Soc.Queensland 54: 49 (syn.nov.).

Length, ♂, 2·7 mm. General coloration yellowish green with conspicuous brown markings. Crown of head slightly produced, light green, with two extensive, almost contiguous U-shaped dark brown markings. Pronotum pale green with a broad median brown band. Tegmen pale yellowish-green with an extensive brown area which occupies most of the tegmen excepting between the apices of Rla and Rlb, and an irregularly shaped central longitudinal area. For male genitalia see Lower (1952).

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Empoasca infulata (Lower) (comb.nov.)

Austroasca infulata Lower, 1953, Proc.Linn.Soc.N.S.W. 78: 33.

Length, ♂, 3·3 mm. General coloration, green. Crown of head obscurely patterned with lighter shades of green. Tegmen pale green tending to brownish apically. For male genitalia, see Lower (1953).

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Wild Horse Plains, South Australia.

Collected on—Atriplex nummularia.

Empoasca malvae Evans

(Fig. 41, G)

Empoasca malvae Evans, 1942, Proc.Roy.Soc.Queensland 54: 49.

Austroasca malvae (Evans), Lower, 1952, Proc.Linn.Soc.N.S.W. 76: 214.

Length, ♂, 3, ♀, 3·5 mm. General coloration, greenish-yellow with brown markings. Face of head yellowish with a broad median, irregular, longitudinal white stripe. Crown pale green with 4 irregular, longitudinal brown stripes. Pronotum light brown with a median greenish-white marking and another near each antero-lateral margin; between these and the central one is a sub-oval white mark. Scutellum with 2 brown anterior median markings. Tegmen, apical third hyaline brown; a wide greenish area along costal margin between the margin and Cu 1. Area posterior to Cu 2 largely brownish-yellow and between Cu 1 and Cu 2 mostly whitish-translucent. For male genitalia see Lower (1952).

Type Location—Queensland Museum.

Type Locality—Gayndah, Queensland.

Collected on—Sida subspicata.

Empoasca merredinensis (Lower) (comb.nov.)

Austroasca merredinensis Lower, 1952, Proc.Linn.Soc.N.S.W. 76: 213.

Length, ♂, 3·9, ♀, 4·4 mm. General coloration (spirit specimens) light brownish.

Anterior margin of crown bluntly angularly produced. For male genitalia see Lower (1952).

Type Location—Australian National Insect Collection, Canberra.

Type Locality—Merredin, Western Australia.

Collected on—Atriplex sp.

Empoasca viridigrisea Paoli

(Fig. 41, A, F)

Empoasca viridigrisea Paoli, 1936, Mem.Soc.Ent.Ital. 15: 12.

Austroasca viridigrisea (Paoli), Lower, 1952, Proc.Linn.Soc.N.S.W. 76: 212.

Length, ♂, 3·8, ♀, 3·9 mm. General coloration green with white markings. Face of head yellowish-green with a variable, irregular white stripe postcriorly and an outwardly directed white band below each ocellus. Crown of even length, emerald green with a narrow irregular, median, white stripe and 2 pairs of lateral ones. Scutellum emerald green with a median regular-shaped longitudinal marking; lateral margins narrowly white. Tegmen, proximal four-fifths yellowish, opaque; apical fifth brownish to translucent; veins clearly visible only in latter area. For male genitalia, see Lower (1952).

Type Location—British Museum.

Type Locality—Bowen, Queensland.

Known distribution elsewhere—Perth, Western Australia.

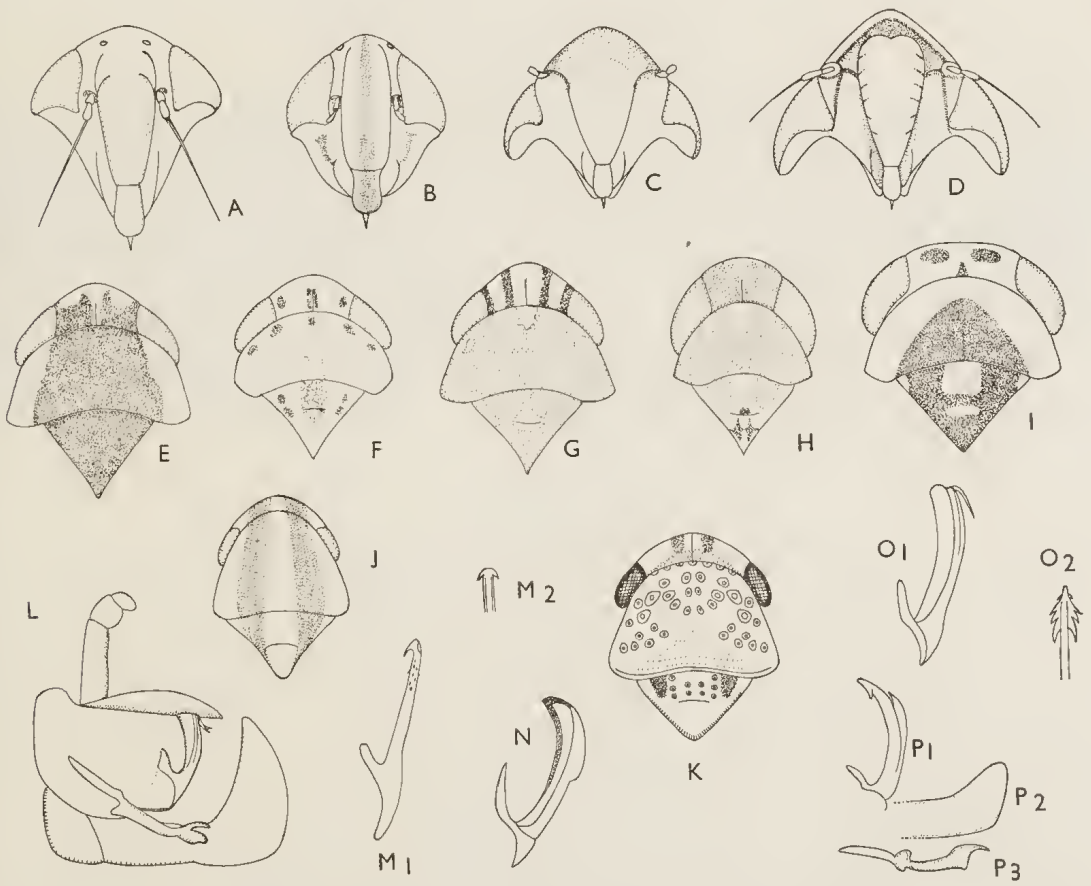

Fig. 41—Face of head: A, *Empoasca viridigrisea;* B, *Empoasca picturata;* C, *Kahaono wallacei;* D, *Aneono australiensis,* Crown and prothorax; E, *Empoasca histrionicula;* F, *E. viridigrisea;* G, *E. malvae;* H, *E. terrae-reginae;* I, *E. australica;* J, *Erythroneura evansi;* K, *Pettya tambourinus.* L, *Kahaono viridis,* male genitalia; M1, *Kahaono montana,* aedeagus; M2, *K. montana,* apex of aedeagus; N, *Kahaono wallacei,* aedeagus; O1, *Kahaono pallida,* aedeagus; O2, *K. pallida,* apex of aedeagus; P1, *Aneono darwinensis,* aedeagus; P2, *A. darwinensis,* apex of subgenital plate; P3, *A. darwinensis,* paramere.

Empoasca euryphaessa (Kirkaldy)

Cicadella euryphaessa Kirkaldy, 1907, Bull.Hawaii Sug.Exp.Sta. 3: 68.

Empoasca euryphaessa (Kirkaldy), Linnavuori, 1960, Act.Ent.Fenn. 15: 17.

Length, ♀, 2·8 mm. General coloration, scarlet. Crown of head narrower posteriorly than hind margin of each eye, produced in front of eyes, scarlet, antero-laterally yellowish. Pronotum, scutellum and basal two-thirds of tegmen, scarlet; apex of tegmen pale hyaline golden brown.

Type Location—H.S.P.A., Honolulu.

Type Locality—Viti Levu, Fiji.

Known distribution elsewhere—Kuranda (Queensland).

Empoasca picturata sp.nov.

(Figs 40, O; 41, B)

Length, ♂, 2·8, ♀, 3 mm. Face of head steeply longitudinally convex, whitish, with a median longitudinal black stripe, extending the entire length of the face and two broad lateral black stripes extending anteriorly from the eyes on each side. Crown of head whitish with a median anterior small black spot. Pronotum and scutellum pale yellowish with a pair of longitudinal black stripes which continue onto the clavus of the tegmina. Tegmina otherwise pale hyaline with a dark brown anterior costal stripe, apically smoky; veins ante-apically brown.

Holotype ♂, and *Allotype* ♀ from Darwin, Northern Territory (coll. light trap, date unknown) in the Australian Museum. *Empoasca picturata* differs from other Australian species ascribed to this genus in having the apices of R and M in the tegmen forming a Y-vein instead of extending separately to the apex of the tegmen.

Empoasca betulicola Wagner

Empoasca betulicola Wagner, 1955, Ent.Mitt.Zool.Staat.Mus.Hamburg. 6: 178.

Empoasca betulicola Wagner, Dumbleton, 1964, N.Z.J.Sci. 7: 573.

Length, ♂, ♀, 4·2-4·8 mm. Coloration similar to *E. smaragdula.*

Type Location—Zoological Museum, Hamburg.

Type Locality—Hamburg.

Known distribution elsewhere—Europe, North America, New Zealand.

Collected on—Betula.

Empoasca smaragdula (Fallen)

Cicada smaragdula Fallen, 1806, Nya.Handl.Svensk.Vet.Akad. 27: 37.

Empoasca smaragdula (Fallen) Dumbleton, 1964, N.Z.J.Sci. 7: 573.

Length, ♂, ♀, 3·8-4·3 mm. General coloration green or greenish-yellow. Crown of head, pronotum and scutellum with a longitudinal pale stripe; inner margin of tegmen usually with a fuscous stripe.

Type Location—Not known.

Type Locality—" Alno Wcftrogothiae."

Known distribution elsewhere—Europe, North America, New Zealand.

Collected on—*Alnus*.

Eupteryx Curtis

Eupteryx Curtis, 1831, Curtis' Guide, Brit.Ins. (6): 1.

Cicadella Dumeril, 1806, Zool.Analyst, Paris ed: 266.

Eupteryx Curtis, 1831, China, 1961, Bull.Zool.Nomencl. 18 (3): 163.

Type species—*Cicada picta* Fabricius (Europe).

In order to enable generic recognition illustrations (Fig. 40, E, M) are given of the tegmina and hindwings of a North American species, *Eupteryx clavalis* McAtee.

Eupteryx haematoptilus Kirkaldy

Eupteryx haemotoptilus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 362.

Length, ♀, 4 mm. " Head, pronotum, genital segments, etc; dark, immaculate, blood red. Scutellum pale luteous. Tegmen subhyaline, more or less tinged with reddish yellow; costal area, apical three-fifths of clavus, a narrow transverse fascia at apical veins, more or less blood red; a blackish red spot at the apex of the costal area; the base of the 4th apical area very narrowly and the apex of the apical areas more or less infumate. Venation on coloured part of tegmen indistinct."

Type Location—H.S.P.A., Honolulu.

Type Locality—Redlynch, Queensland.

The above species is unknown to me and may well have been incorrectly ascribed to the genus *Eupteryx*.

Dikraneura Hardy

Dikraneura Hardy, 1850, Trans.Tyneside Nat.Fld.Club. 1: 423.

Type species—*Dikraneura variata* Hardy (England).

In order to enable generic recognition illustrations (Fig. 40, A, H) are given of the tegmina and hindwings of a North American species, *Dikraneura angustata* Ball and DeLong.

Dikraneura honiala Kirkaldy

Dikraneura honiala Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 360.

Length, ♀, 3·7 mm. " Head, pronotum, scutellum and general ventral aspect, pale brownish-yellow. Tegmina pale golden yellow, shining; a black spot at the apex, ringed with whitish; first apical cell whitish, narrowly ringed with brownish; a small oblique brownish black line from costa inwards at about the middle. Sub-marginal vein entire."

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Qucensland.

The above species probably does not belong to the genus *Dikraneura* since the vein which arises from M apically is in the form of a Y-vein.

Dikraneura aneala Kirkaldy

Dikraneura aneala Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 360.

Length, ♀, 3·7 mm. "Vertex, frons, pronotum and scutellum orange brown, the two latter obscurely so. Tegmina pale greenish-yellow, apical cells, dilute, smoky."

Type Location—H.S.P.A., Honolulu (tegmina missing).

Type Locality—Sydney, New South Wales.

Dikraneura maorica Myers

Dikraneura maorica Myers, 1923, Trans.N.Z.Inst. 54: 423.

Length, ♀, 3 mm. "Vertex, pronotum and scutellum sulphur-yellow. Tegmina paler. Underside and legs yellow, claws black, tarsi often green. Rostrum tipped with crimson."

Type Location—British Museum.

Type Locality—Long Acre, Wanganui, New Zealand.

Dumbleton (1964) has suggested that the above species may be incorrectly placed in this genus.

Ghauri (1963) has transferred to the genus *Zygina* all typhlocybids described from New Zealand formerly placed in the genus *Erythroneura*. It is possible that a similar procedure is necessary in respect also to the Australian species ascribed to this genus.

Erythroneura Fitch

Erythroneura Fitch, 1851, Rep.N.Y.State Mus. 62.

Type species—*Erythroneura tricincta* Fitch (North America).

Erythroneura honiala Kirkaldy

Erythroneura honiala Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 365.

Erythroneura honiala Kirkaldy, Myers, 1921, Proc.Linn.Soc.N.S.W. 46: 474.

Length, ♂, 2·5 mm. "Pale golden yellow. Tegmina more or less hyaline. Head convex, anteriorly rounded, shorter than pronotum. Tegminal veins all distinct." For male genitalia see Myers (1921).

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Erythroneura ipoloa Kirkaldy

Erythroneura ipoloa Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 365.

Length, 2·5 mm. "Pale yellowish cinerous, paler beneath; eyes and a large spot on the anterior margin of vertex, black, the latter irregularly encircled by a faint brown halo; a transverse brown stripe, widening medially, on the pronotum close to the posterior

margin. Scutellum and rest of pronotum more or less sordid. Tegmen hyaline, costally smoky. Vertex roundly triangular, about the same length as pronotum."

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Erythroneura ix Myers

(Fig. 40, F, I)

Erythroneura ix Myers, 1928, Bull.Ent.Res. 18: 311.

Length, ♂, ♀, 3 mm. General coloration, deep yellow or greenish-yellow. For male genitalia, see Myers (1928).

Type Location—British Museum.

Type Locality—Melbourne, Victoria.

Collected on—Garden plants, vegetables and weeds.

Erythroneura lubra Kirkaldy

Erythroneura lubra Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 364.

Length, 3 mm. "Pale yellowish, rather sordid; rostrum pale ferruginous. Tergites (except genital segment and narrowly laterally) black. Tegmina hyaline milky; veins pale yellow. Vertex at base, wider than an eye."

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Erythroneura melanogaster Kirkaldy

Erythroneura melanogaster Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 364.

Length, 3 mm. "Head sordid brown, darkening at the anterior margin of vertex, the posterior margin paler. Pronotum creamy, the posterior third (produced medianly forward) greyish; antero-laterally, a curved black line on each side. Scutellum more or less sordid yellowish; antero-lateral angles widely black. Tegmina subhyaline, clavus and costal cell pale yellowish-brown. Abdomen black."

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Erythroneura sativae Evans

Erythroneura sativae Evans, 1941, Proc.Roy.Soc.Queensland 52: 12.

Length, ♂, 2 mm. General coloration yellow, eyes black; crown of head arrow-shaped. For male genitalia see Evans (1941).

Type Location—Queensland Museum.

Type Locality—Yeerongpilly, Queensland.

Erythroneura sidnica Kirkaldy

Erythroneura sidnica Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 69.

Erythroneura sidnica Kirkaldy, Myers, 1921, Proc.Linn.Soc.N.S.W. 46: 474.

Length, 3 mm. "Pale yellowish, immaculate, paler beneath." For male genitalia see Myers (1921).

Type Location—H.S.P.A., Honolulu (in bad condition).

Type Locality—Sydney, New South Wales.

Erythroneura evansi Ross

(Fig. 41, J)

Erythroneura evansi Ross, 1965, Zool.Beitr.Berl. 11: 267.

Length, ♂, 3 mm. Face of head yellow, ante-clypeus black. Crown of head and thorax yellow with a pair of longitudinal black stripes which are at their widest at the hind margin of the pronotum. Tegmen yellow with the smoky-brown longitudinal streaks largely situated between veins R and M and against the hind margin of the clavus; apex of tegmen, hyaline-smoky-brown, veins yellow.

Type Location—Australian Museum.

Type Locality—Hobart, Tasmania.

Known distribution elsewhere—Warwick Farm (New South Wales); Woods Park (Victoria).

Zygina Fieber

Zygina Fieber, 1866, Verh.Zool.Bot.Ges.Wien. 16: 509.

The venation of the tegmina and hind wings of species in the genus resemble those of species in the genus *Erythroneura* and the principal distinguishing generic characteristic is the broad extension of the apices of the paramercs.

Type species—*Typhlocyba nivea* Mulsant and Rey (Europe).

Key to Species of the Genus Zygina recorded from New Zealand (from Ghauri, 1963)

The New Zealand species of *Zygina* can be separated on superficial characters as follows:—

1.	Species with tegmina normal in shape, rounded at apex	2
–.	Species with tegmina characteristic, acutely angled apically	**toetoe** Cumber
2.	Species with numerous dark markings	**ansonae** Myers
–.	Species without markings	3
3.	Dorsal surface of abdomen dark (black)	**zealandica** Myers
–.	Dorsal surface of abdomen light	4
4.	Colour bright golden yellow	**kiekie** Myers
–.	Colour light canary yellow or whitish	5

5. Vertex short, length of vertex equal to half the width between the eyes ..... **cythea** Myers

–. Vertex long, length of vertex equal to two thirds the width between the eyes.... ..... **dumbletoni** Ghauri

Zygina ansonae (Myers)

Erythroneura ansonae Myers, 1923, Trans.N.Z.Inst. 54: 427.

Zygina ansonae (Myers), Ghauri, 1963, Ann.Mag.Nat.Hist. 6: 41.

Length, ♀, 3·5-3·7 mm. "General colour yellowish, marked and suffused with greenish and olivaccous. Vertex about twice as wide as medianly long. Vertex (crown) with or without an obscure dusky blotch on each side. Pronotum dark olive, anterior and lateral borders, pale yellow; caudad of anterior edge, the olive area is edged with blackish; a few other small irregular black marks. Transverse line in centre of scutellum divides the olivaceous anterior portion with its 2 shining brown basal triangles from the elevated bright yellow apex. Dorsal surface of abdomen dark, showing through the closed tegmina and wings. Tegmina semi-transparcnt, olivaceous; membrane infuscated."

Type Location—British Museum.

Type Locality—Wellington, Wanganui, New Zealand.

Zygina cyathea (Myers)

Erythroneura cyathea Myers, 1923, Trans.N.Z.Inst. 54: 426.

Zygina cyathea (Myers), Ghauri, 1963, Ann.Mag.Nat.Hist. 6: 41.

Length, ♂, ♀, 3·4-4 mm. "General colour pale yellowish or greenish-white or practically colourless. Vertex pallid, tumid, produced, punctate with occasionally 2 brownish patches varying from faint smudges to distinct spots."

Type Location—British Museum.

Type Locality—Tararua Ranges, 2,000-3,000 feet, Wellington District, New Zealand.

Zygina kiekie (Myers)

Erythroneura kiekie Myers, 1923, Trans.N.Z.Inst. 54: 426.

Zygina kiekie (Myers), Ghauri, 1963, Ann.Mag.Nat.Hist. 6: 41.

Length, ♂, ♀, 3·7 mm. "Whole upper surface bright yellow, thoracic nota often orange."

Type Location—British Museum.

Type Locality—Days Bay, Wellington, New Zealand.

Known distribution elsewhere—Whangerei.

Collected on—Freycinetia banksii.

Zygina zealandica (Myers)

Erythroneura zealandica Myers, 1923, Trans.N.Z.Inst. 54: 425.

Zygina zealandica (Myers), Ghauri, 1963, Ann.Mag.Nat.Hist. 6: 41.

Length, ♂, 2·7 mm. "Vertex dirty greenish-yellow, with sometimes an indistinct greyish smudge on each side. Pronotum and scutellum yellowish-green. Scutellum with indications of 3 median longitudinal stripes anteriorly. Dorsal surface of abdomen black, visible through the folded wings. Tegmina yellow to yellowish-green."

Type Location—British Museum.

Type Locality—Tararua Range, 4,000-5,000 ft, Wellington, New Zealand.

Known distribution elsewhere—Wanganui.

Zygina dumbletoni Ghauri

Zygina dumbletoni Ghauri, 1963, Ann.Mag.Nat.Hist. 6: 39.

Length, ♂, 2·6 mm, ♀, 2·7 mm. General coloration, light canary yellow. For male genitalia, see Ghauri (1963).

Type Location—British Museum.

Type Locality—Riccarton, New Zealand.

Collected on—Rubus.

Zygina toetoe (Cumber)

Erythroneura toetoe Cumber, 1952, Trans.Roy.Soc.N.Z. 79: 525.

Zygina toetoe (Cumber) Ghauri, 1963, Ann.Mag.Nat.Hist. 6: 41.

Length, ♂, ♀, 3·5-3·9 mm. General coloration, light yellow. For male genitalia, see Cumber (1952).

Type Location—British Museum.

Type Locality—Paiaka Swamp area, New Zealand.

Collected on—Arundo conspicua.

Pettya Kirkaldy

Pettya Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 343.

Eutambourina Evans, 1942, Pap.Roy.Soc.Tasm. 1941: 27 (syn.nov.).

"Vertex more than twice as wide as long dorsally, anteriorly rounded, bent over in front and extending ventrally about as far as antennal lobes; posteriorly above tumidly raised, posterior margin much more so than the apical margin of pronotum. Head distinctly as long as wide, about two and a half times as long as vertex dorsally, strongly arched anteriorly, lateral margins long, posterior margin subtruncate. Tegmina with 2 discoidal and 4 apicals. Wings lacking a submarginal vein."

Type species—*Pettya anemolua* Kirkaldy.

Kirkaldy (1906) placed this genus in the Macrostelini, but examination of the type specimen has disclosed that it belongs to the Typhlocybinae.

Pettya anemolua Kirkaldy

Pettya anemolua Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 343.

Length, 6 mm. "Head pale lutcous, frons and clypeus with an orange tint. Pronotum and scutellum greyish-white, the former closely reticulate with greyish brown. Tegmina and wings milk-white hyaline, tegmina costa pale yellow."

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Pettya taedia (Kirkaldy) (comb.nov.)

Nesosteles taedia Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 345.

Length, 4·2 mm. "Sordid lemon yellow, vertex with two black spots near the anterior margin; frons discally black, clypeus smoky, scutellum dark brownish. Commisural cell of clavus, basal part of costal cell and apical half of tegmina smoky." *P. taedia* differs from the type species, *P. anemolua*, in having lateral depressions at the back of the crown and the pronotum is not reticulate.

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Pettya punctata Evans (comb.nov.)

(Figs 40, J; 41, K)

Eutambourina punctata Evans, 1942, Pap.Roy.Soc.Tasm. 1941: 27.

Length, ♂, 3·8 mm. Face of head, ante-clypeus brown, smooth; lora and maxillary plates brown with yellow pits; fronto-clypeus and vertex yellow except for a pair of lateral brown spots and a pair of broad longitudinal brown stripes that extend almost as far as the hind margin of the crown. Pronotum and scutellum pale lemon yellow. Tegmen hyaline, pale yellow partially suffused with brown and with a whitish oval wax area adjacent to the costal margin.

Type Location—British Museum.

Type Locality—Tambourine Mountains, Queensland.

Typhlocyba Germar

Typhlocyba Germar, 1833, Silb.Rev.Ent. 1: 180.

Type species—*Cicada quercus* Fabricius (Europe).

Typhlocyba froggatti (Baker)

(Fig. 40, G, N)

Empoasca australis Froggatt, 1918, Agric.Gaz.N.S.W. 29: 568.

Typhlocyba australis (Froggatt), Myers, 1921, Proc.Linn.Soc.N.S.W. 46: 473.

Typhlocyba zanthippe McAtee, 1926, Proc.U.S.Nat.Mus. 68, art. 18: 14.

Typhlocyba malini DeLong, 1926, J.Econ.Ent. 19: 469.

Typhlocyba froggatti Baker, 1925, Philippine J.Sci. 27: 537 (nom.nov.).

Typhlocyba oxyacanthae Ribaut, 1931, Bull.Soc.Hist.Nat.Toulouse 61: 334.

Edwardsinana froggatti (Baker), China, 1950, Ent.Month.Mag. 86: 243.

Length, ♂, ♀, 3-3·6 mm. General coloration bright yellow; apical cell of tegmen hyaline-brown. For male genitalia see Myers (1921).

Type Location—(Types not designated).

Type Locality—Binalong, New South Wales.

Known distribution elsewhere—Europe, North America, New Zealand, Tasmania.

Collected on—*Crataegus*, apple.

Typhlocyba lethierryi Edwards

Typhlocyba lethierryi Edwards, 1881, Ent.Mon.Mag. 17: 224.

Edwardsiana lethierryi (Edwards), Dumbleton, 1964, N.Z.J.Sci. 7: 573.

General coloration deep yellow inclining to orange. Costal margin and sometimes anal margin of tegmen narrowly reddish.

Type Location—British Museum.

Type Locality—England.

Known distribution elsewhere—Europe, North America, New Zealand.

Collected on—*Acer*, *Aesculus*, *Crataegus*.

Ribautiana Zackhvatkin

Ribautiana Zachvatkin, 1947, Rev.Ent.URSS 3-4: 112.

Ribautiana Zachvatkin, Young, 1952, Univ.Kansas,Sci.Bull. 35 (1): 99.

Type species—*Cicada ulmi* Linnaeus.

Ribautiana tenerrima (Herrich-Schaeffer)

Typhloycba tenerrima (Herrich-Schaeffer), 1834, Deutschlands Insecten: 112: 17.

Ribautiana tenerrima (H.S.), Dumbleton, 1964, N.Z.J.Sci. 7: 572.

Length, ♂, ♀, 2·7-3·5 mm. Tegmina whitish hyaline with 3 broad yellow stripes.

Type Location—Unknown.

Type Locality—Unknown.

Known distribution elsewhere—Europe, North America, New Zealand.

Collected on—*Rubus* app., *Quercus*.

The Family Membracidae

It is customary, in most entomological works, for membracids to be regarded as an equally distinctive group of Homoptera as cicadoids, cercopoids and cicadelloids.

The reason they are considered here as no more than a family of the Cicadelloidea is because they share many fundamental characteristics with representatives of the Cicadellidae in which they differ from the other superfamilies of the Auchenorrhyncha. Furthermore, forms are known which are, to some extent, transitional between typical membracids and typical cicadellids.

In the heads of both cicadellids and membracids and, as well, in all other representatives of the Cicadelloidea, the anterior arms of the tentorium lack association with the posterior ones. The prothorax of all membracids is enlarged but so it is in certain cicadellids, while it is of normal proportions in representatives of two families, the Aetalionidae and the Biturritidae, with many membracid-like characteristics.

In the basic pattern of the venation of the forewings of cicadellids, M and R form a single vein proximally while in most membracids M and Cul are basally incorporated in a single vein. However, in some membracids R, M and Cul are all separate proximally, while in some biturritids (which many authors include in the Membracidae) R and M are basally joined. The pretarsal structure of membracids is identical with that of cicadellids, but differs from those of cercopids and cicadas (Fennah, 1945). Cicadellids have been supposed to differ from membracids in lacking a filter-chamber, but this feature is common to both groups. Finally, the nymphs of membracids, aetalionids and biturritids, are ant-attended, but so also are those of eurymelids and even, also, of some cicadellids.

Stål, (1866), separated the Membracidae into 6 sub-families of which five are confined to the western hemisphere. Haupt (1929) recognised 12 sub-families of which nine have a similar restricted distribution. Those of Haupt's sub-families which have a wide distribution are the Centrotinae, Terentiinae and Oxyrhachinae.

The Oxyrhachinae lack representation in Australia and the genus *Terentius* Stål, though occurring in Australia, possibly lacks sufficient distinctive characteristics to merit sub-family separation. Accordingly, it is proposed, for the time being, to regard all Australian membracids as belonging to the sub-family Centrotinae.

Funkhouser (1950-52) has separated this sub-family into several tribes. In the present state of knowledge of the Australian fauna and of membracid classification generally, it is considered inadvisable to ascribe the Australian genera to any of these or to create new ones.

The Centrotinae, and likewise the Oxyrhachinae, comprise the most generalised true membracids, from which very possibly, all the other sub-families may have been derived. While these sub-families are of wide distribution, they are most richly represented in the Oriental region and this may have been their centre of distribution.

It is of interest to speculate why such considerable evolutionary developments occurred among the Membracidae in the Neotropical region during its Tertiary isolation, when similar ones did not take place among populations isolated in Australia during the corresponding period. Unfortunately, Madagascar, which was likewise isolated during the greater part of the Tertiary, like New Zealand, lacks a membracid fauna, hence evolutionary occurrences in this island cannot be examined for comparative purposes. However, " explosive evolution " has been recorded among a population of cicadellids in Madagascar and this may have been induced by factors similar to those responsible for the differentiation of the numerous membracid sub-families in South America. In both instances the genetic disharmony responsible for the unusual evolutionary occurrences might have been associated with the restriction of gene flow in a peripherally isolated population (Mayr, 1954, Evans, 1959).

The membracid fauna of Australia is a largely homogenous one, and its special characteristics suggest a long period of isolation in the continent. The endemic fauna, moreover, can be readily distinguished from the Indo-Malayan element of which it is presumed that the greater part gained access to north Queensland during Pleistocene times.

Few records exist of the food-plant association of Australian membracids but several species are known to live on acacias. These trees and shrubs which are one of the dominant elements of the Australian flora do not serve as food for more than a few species of Australian cicadellids.

It has proved, in many instances, impossible to determine whether forms differing in minor pronotal characteristics merit specific status. This is largely because the male genitalia of membracids, unlike those of cicadellids, do not always provide helpful characters for species recognition.

It needs to be explained that the section which follows is considerably less advanced in understanding than the preceding one. This is because the author lacks a long background of experience of membracid systematics and has never formerly paid particular attention to the Australian fauna.

It is hoped, nevertheless, that the information made available will enable the recognition of many of the described genera of Australian membracids and prove helpful, as a point of departure, for anyone wishing to make a critical study of the group as a whole.

It has been necessary to quote several original descriptions since the material available for study has been limited and many described species have not been seen by the author, or, if seen, not identified.

Furthermore, since several genera have not been well defined, or if well-defined, their special generic characteristics have not been recognised by later workers, it is possible that some species, in addition to those noted, have been ascribed to genera to which they do not properly belong.

Characteristics:

In the head (Fig. 4, C), the maxillary plates are narrow, and largely concealed by the lora; well-developed antennal ledges terminate laterally, in front of the eyes, and the epicranial suture and the ocelli are always facial in position. The pronotum is always enlarged, sometimes grotesquely so.

The mesonotum (Fig. 5, F) lacks paired median longitudinal unsclerotised areas and is apically transverse. In the tegmen the anterior branch of the media is presumably incorporated in the same vein as the radial sector and proximally, the media may arise independently, or be incorporated for a short distance, either with the radius, or with the first cubitus (Figs 6, C, 42, A). The hind tibiae are flattened and bear small, regularly-spaced marginal spines (Fig. 5, I). In the male genitalia the base of the aedeagus is linked to the paired paramcres by a basal connective (Fig. 8, C, D, E). The nymphs, which together with the adults, are ant-attended, have lateral abdominal processes and a long tubular ninth abdominal tergite, enfolding the tenth, or anal segment, which is extrusible. They do not jump if disturbed (Fig. 42, H2, H3).

Key to the Genera of Australian Membracidae*

1. Green insects; venation of tegmen reticulate..... **Sextius** Stål
   Yellowish-brown, brown, or black insects.....2

2. (1) Lateral pronotal processes wedge-shaped, anteriorly directed; venation of tegmen reticulate..... **Goddefroyinella** Distant
   Lateral pronotal processes not as above; venation not reticulate 3

3. (2) In the tegmen, 3 cross-veins present between M and Cul.... **Eufrenchia** Goding
   In the tegmen not more than 2 cross-veins between M and Cul 4

4. (3) Pronotum with an unpaired, vertical, apically inflated process.. **Eutryonia** Goding
   Not as above 5

5. (4) Pronotum with paired triangular lateral processes; median process sinuate, broadly or narrowly elevated anteriorly; a posterior vertical process sometimes also present.....6
   Not as above 7

6. (5) Pronotum with median process broadly or narrowly elevated anteriorly.....
   ..... **Acanthucus** Stål
   Pronotum with median process strongly sinuate and with both anterior and posterior vertical processes..... **Acanthucalis** gen.nov.

7. (5) Pronotum with a strongly sinuate median process; lateral processes apically acute, extending only slightly beyond humeral angles..... **Alocanthella** gen.nov.
   Not as above 8

8. (7) Lateral pronotal processes well developed, not horizontal 9
   Lateral pronotal processes absent, or small; if well developed horizontal, or almost so (anyhow in ♂ insects).....15

9. (8) Shining black insects with narrow, apically acute, lateral pronotal processes.....
   ..... **Sarantus** Stål
   Not as above 10

10. (9) In the tegmen, M and Cul proximally, forming a single vein.. **Kurandella** gen.nov.
    In the tegmen, M and Cul, proximally, not forming a single vein.....11

11. (10) Lateral pronotal processes apically inflated or club-shaped 12
    Lateral pronotal processes not as above.....13

12. (11) Lateral pronotal processes apically club-shaped..... **Ceraon** Buckton
    Lateral pronotal processes apically inflated..... **Lubra** Goding

13. (11) Only one surface of the lateral pronotal processes visible from above.....
    ..... **Eufairmairiella** gen.nov.
    Two surfaces of the lateral pronotal processes visible from above.....14

14. (13) Apices of lateral pronotal processes broadly acute..... **Cebes** Distant
    Anterior margins of lateral pronotal processes convex, posterior margins straight..
    ..... **Eufairmairia** Distant

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* Certain genera recorded from Australia have been omitted from the Key, since the comprised Australian species are apparently not congeneric with the type species of these genera. Others have been omitted because they are of uncertain geographical origin.

15. (8) Lateral pronotal processes lacking 1
Lateral pronotal process present 1

16. (15) In the tegmen, M and Cul separate for their entire lengths.... **Terentius** Stå
In the tegmen, M and Cul basally fused 1

17. (16) In the tegmen cross vein *m-cu*2 present..... **Dingkana** Goding
In the tegmen, cross-vein *m-cu*2 lacking..... **Anzac** Distan

18. (15) Lateral pronotal processes small, not, or only very slightly, extending beyond humera angles 1
Lateral pronotal processes extending beyond humeral angles..... 2

19. (18) Median pronotal process sinuate..... **Crito** Distan
Median pronotal process straight..... **Pogonotypellus** gen.nov

20. (18) Lateral pronotal processes apically acute 2
Lateral pronotal processes broad 2

21. (20) Well-developed, apically acute, lateral pronotal processes.. **Otinotoides** Distant
Small, and slightly projecting acute lateral pronotal processes.. **Sertorius** Stål

22. (20) In the tegmen *m-cu*3 only cross vein linking M and Cul 2
In the tegmen cross-veins *m-cu*1 and *m-cu*3 present; lateral pronotal processes short, broad, three-sided and slightly dorsally directed; *m-cu*1 closer to fork of M than to bases of M and Cul..... **Alocebes** gen.nov.

23. (22) Pronotum immediatcly posterior to lateral processes strongly carinate and convex ..... **Bucktoniella** gen.nov.
Pronotum not as above 2

24. (23) Pale yellowish-brown insects, in tegmen cross-vein *m* in continuous alignment with R and M 1 + 2..... **Alosextius** gen.nov.
Dark brown insects; venation not as above..... **Pogonella** gen.nov.

Endemic Genera

Eufrenchia Goding

Eufrenchia Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 24.

Ibiceps Buckton, 1903, Monog.Membrac. 238.

Insects 6-7 mm in length, dark reddish brown, or black, in colour, the pronotum heavily pitted and with white scale-like hairs. The lateral, thickened, strap-shaped processes of the pronotum are usually apically recurved. The posterior process, which is anteriorly straight and apically downwardly curved, extends almost as far as the apices of the folded tegmina. The tegmina have complete venation, M and Cul being separate for their entire lengths and linked by 3 cross veins.

Type species—*Centrotus falcatus* Walker.

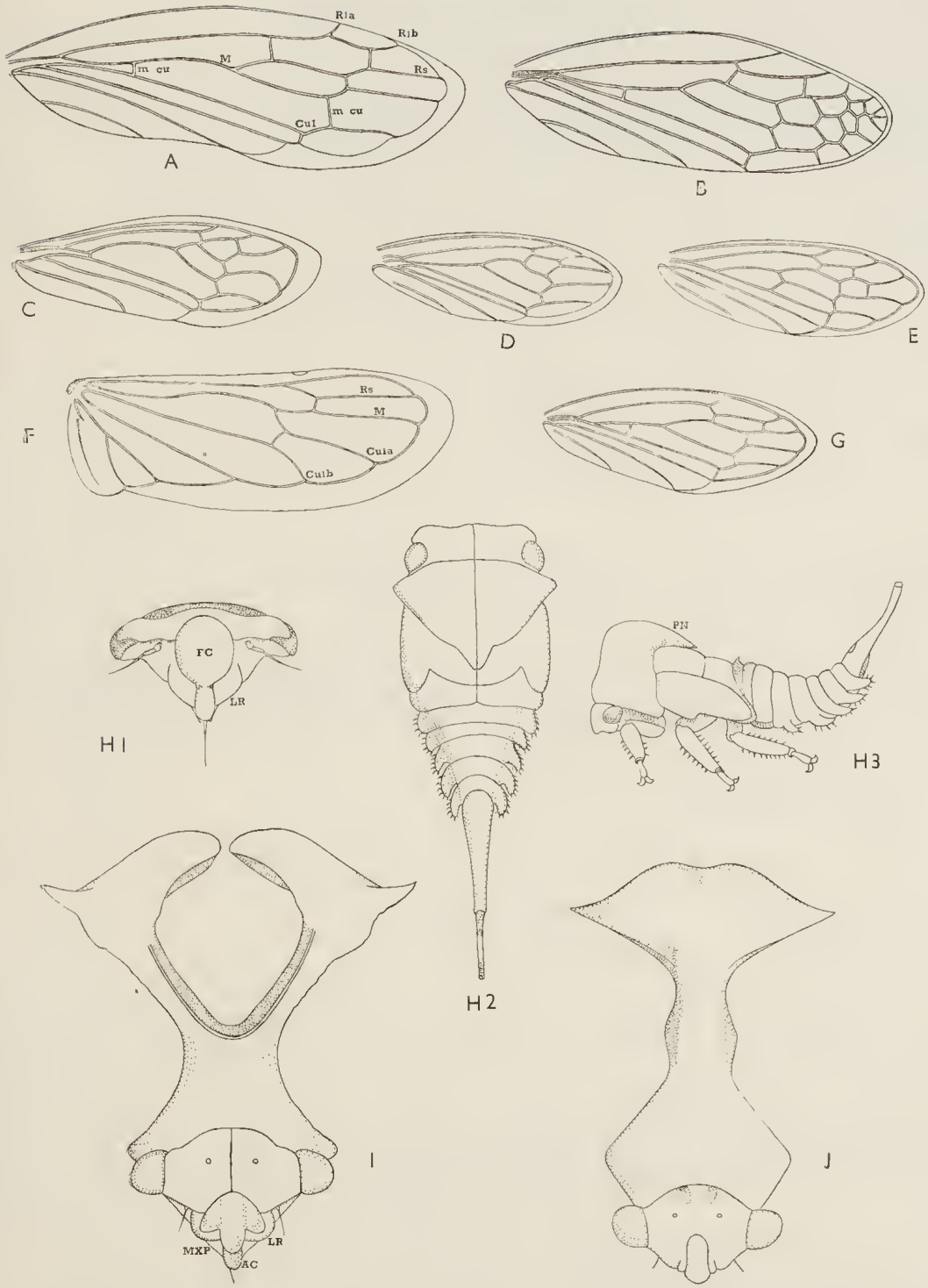


Fig. 42: A, *Ceraon vitta*, tegmen; B, *Sextius virescens*, tegmen; C, *Terentius rolandi*, tegmen; D, *Otinotoides australis*, tegmen; E, *Dingkana borealis*, tegmen; F, *Eutryonia monstrifer*, wing; G, *Terentius convexus*, tegmen; H1, *Sextius virescens*, face of head of nymph; H2, 3, *Sextius virescens*, nymph; I, *Lubra spinicornis*, head and pronotum; J, *Eutryonia monstrifer*, head and pronotum.

Eufrenchia falcata (Walker)

(Fig. 6, C)

Centrotus falcatus Walker, 1851, List.Homopt.Brit.Mus. 2: 622.

Sertorius curvicornis Stål, 1869, Öfvers.Vetensk.Akad.Förh.Stockh. 24: 287.

Ibiceps falcatus Buckton, 1903, Monog.Membrac. 239 (preoccupied) (syn.nov.).

Eufrenchia bucktoni Funkhouser, 1950, Gen.Insect.Fasc. 208: 241 (nom.nov.).

Length, ♂, 6·5, ♀, 7-8 mm. General coloration, dark brown, or black.

Type Location—British Museum.

Type Locality—Van Dieman's Land.

Known distribution elsewhere—Adelaide (South Australia); Stawell (Victoria); King George's Sound (Western Australia); "Queensland".

Eufrenchia leae Goding

Eufrenchia leae Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 26.

Length, ♀, 6 mm. "Prothorax dark ferruginous, punctured, lateral horns not contiguous at bases, extend upward and strongly forward, long sides parallel, a small apical portion outward; apical angles as in *falcatus*. Posterior process tectiform, not convex, strong and broad at base, gradually narrowed to apex, which reaches apices of tegmina."

Type Location—United States National Museum.

Type Locality—Western Australia.

Eufairmairia Distant

Eufairmairia Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 35.

Insects ranging in length from 7 to 12 mm (from the anterior apex of the pronotum, not including the lateral processes) and reddish-brown, dark brown, or black in colour. The pronotum is rugose and sometimes pitted and has a pair of wedge-shaped lateral processes which are somewhat upwardly directed and may be transverse, or forwardly directed, and may be longitudinally ridged on their dorsal surfaces. The apex of each process is wide, the anterior margin curved and the posterior margin straight. The median process extends to the apices of the folded tegmina. In the tegmina M and Cu 1 are separate for their whole lengths and the 2 cross-veins between M and Cu 1 arc *m-cu*1 and *m-cu*3.

Type species—*Centrotus decisus* Walker.

Ten species are listed below, since, becausc of lack of sufficient material, it has been impossible to determine the extent of the synonymy involved. It is possible, however, that future investigation will disclose that 3 species only properly belong to the genus *Eufairmairia* as follows: *E. acanthaspis*, *E. giganticus* and *E. rubridorsata*.

Eufairmairia decisus (Walker)

Centrotus decisus Walker, 1851, List.Homopt.Brit.Mus. 2: 621.

"Length 4 lines. Fore chest high in front, roughly punctured, very slightly ridged, rising vertically above the head; shoulders angulate, not prominent; horns above them very thick, prismatic, ascending slightly, diverging, their tips much rounded."

Type Location—British Museum.

Type Locality—New Holland.

Eufairmairia acanthaspis (Fairmaire)

(Fig. 5, F)

Centrotus acanthaspis Fairmaire, 1846, Ann.Soc.Ent.Fr. (2) 4: 515.

Eufairmairia acanthaspis (Fairmaire), Distant, 1916, Ann.Mag.Nat.Hist. 8 (18): 37.

According to Distant, this species can be distinguished from others in the genus by the ochreaceous tibiae.

Length, 9 mm. "Allied to *E. consobrinus* from which it differs in the slightly longer but much narrower lateral pronotal processes and their more acute apices; the posterior pronotal process is also shorter."

Type Location—Type not in existence.

Type Locality—Port Jackson, New South Wales.

Known distribution elsewhere—Rockhampton (Queensland).

Eufairmairia giganticus (Goding) (comb.nov.)

Sertorius giganticus Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 20.

Length, ♀, 12 mm. A heavy, broad, insect readily distinguished from other species by its size.

Type Location—United States National Museum.

Type Locality— South Australia.

Known distribution elsewhere—Baxter (Victoria).

Eufairmairia rubridorsata (Buckton) (comb.nov.)

Pterosticta rubridorsata Buckton, 1903, Monog.Membrac. 230.

Length, ♂, ♀, 8 mm, width across lateral pronotal processes 3·5 mm. General coloration, brown. Median pronotal longitudinal ridge, well-defined.

Type Location—British Museum.

Type Locality—Adelaide, South Australia.

Known distribution elsewhere—Mordialloc (Victoria).

Eufairmairia distinctus Distant

Eufairmairia distinctus Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 38.

Length, 7 mm. "Head and pronotum black. Tegmina pale bronzy with darker suffusions, base black immediately followed by an obscure pale transverse fascia. Pronotum longitudinally carinate, the lateral processes broad, outwardly and a little upwardly directed, the apices roundly truncate, but with the posterior angle acute, the upper surface with three strong longitudinal carinations; posterior proccss very robust and compressed for about two-thirds its length from base; apically reaching the posterior angle of the inner tegminal margin."

Type Location—British Museum.

Type Locality—Port Darwin, Northern Territory.

Eufairmairia fraternus Distant

(Fig. 43, A)

Eufairmairia fraternus Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 36.

Length, 7-8 mm. "Head and pronotum dull testaceous, faintly ochraceously pilose. Tegmina pale hyaline, venation dull testaceous, base black, basal half of costal area and base of discoidal area ferruginous. Pronotum centrally longitudinally carinate, the lateral processes obliquely raised, a little narrowed to their apices, which are also a little obliquely roundly truncate, their upper surfaces longitudinally carinate, posterior process with the lateral areas carinate its apex not quite reaching the tegminal apex."

Type Location—British Museum.

Type Locality—Gayndah, Queensland.

Known distribution elsewhere—Capertee, Rylstone (New South Wales); Stanthorpe, Bunya Mountains (Queensland).

Eufairmairia harrisi Distant

Eufairmairia harrisi Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 35.

Length, 8·5 mm. "Head and pronotum piceous brown. Tegmina pale bronzy; venation, base and costal area excluding apex, ferruginous-brown. Anterior lateral processes of pronotum obliquely upwardly produced, distinctly narrowed to apices, which are somewhat roundly truncate, their upper surfaces flat with three longitudinal carinations, strongly centrally longitudinally carinate, the posterior process faintly longitudinally carinate on the lateral areas."

Type Location—British Museum.

Type Locality—Queensland.

Eufairmairia relatus Distant

Eufairmairia relatus Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 36.

Length, 7-8 mm. "Head and pronotum dull testaceous, faintly ochraceously pilose. Tegmina pale hyaline, venation dull testaceous, base black, basal half of costal area and base of discoidal area ferruginous. Pronotum centrally longitudinally carinate, the lateral

processes obliquely roundly truncate, their upper surfaces longitudinally carinate; posterior process with the lateral areas carinate, its apex not reaching tegminal apex."

Type Location—British Museum.

Type Locality—Gayndah, Queensland.

Eufairmairia consobrinus Distant

Eufairmairia consobrinus Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 37.

Length, 7-8 mm. "Head and pronotum dark purplish brown. Tegmina subhyaline, venation ochraceous, base and basal half of costal area, purplish-brown. Pronotum centrally longitudinally carinate, the lateral proccsses broad, compressed, obliquely upwardly directed, their apices roundly truncate, the posterior apical angle acute, their upper surfaces distinctly longitudinally carinate. Posterior process reaching or almost reaching the tegminal apex."

Type Location—British Museum.

Type Locality—Rockhampton, Queensland.

Known distribution elsewhere—Coolabah (New South Wales).

Eufairmairia cupreus Distant

Eufairmairia cupreus Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 38.

This species was provisionally placed in this genus by Distant. Length 8 mm. "Facc and clypeus black; sternum blackish; thickly greyishly pilose. Tegmina pale hyaline, the venation and extreme base brownish ochraceous. Lateral processes of pronotum triangular, outwardly and a little obliquely produced, their apices acute and slightly recurved, their upper surfaces very obsoletely carinate, the posterior process robust for about half its length, the apical area roundly depressed, its apex reaching the tegminal apices."

Type Location—British Museum.

Type Locality—Yallingup, Western Australia.

Eufairmairiella gen.nov.

The hind margin of the face of the head is transverse. Viewed from in front, the sides of the oblique lateral pronotal processes slope evenly towards the humeral angles in the ♀. In the ♂, in which the lateral processes are more flattened, the sides of the pronotum between the base of the processes and the humeral angles are parallel with each other. From above, the lateral processes, which are apically broad, with a posterior apical spine-like extension, are transverse, though in the ♂, the anterior margins are directed somewhat posteriorly. The median pronotal process, which is centrally carinate and downwardly curved posteriorly, extends as far as the apices of the folded tegmina. In the tegmina M and Cu1 are separate for the whole of their lengths and cross-vein *m-cu*1 as well as *m-cu*3, is developed.

Type species—*Sertorius curvicaudus* Goding.

Eufairmairiella resembles *Eufrenchia* in the shape of the apices of the lateral pronotal processes and in the presence of cross-vein *m-cu*1 in the tegmen.

Eufairmairiella curvicaudus (Goding) (comb.nov.)

(Fig. 43, B)

Sertorius curvicaudus Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 24.

Length, ♂, 6·8-7 mm; ♀, 7·8 mm. Coloration black, or, dark brown. Pronotum rugose, punctate, lateral processes sometimes with longitudinal ridges on their dorsal surfaces. Tegmen vitreous, basally black, punctate, apically narrow, veins black.

Type Location—United States National Museum.

Type Locality—Tweed River, New South Wales.

Known distribution elsewhere—Brisbane, Kuranda (Queensland).

Cebes Distant

Cebes Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 39.

Brown insects, 6-7·5 mm in length. The pronotum is rugose and the thickened lateral processes are either transverse and slightly upwardly turned, or anteriorly inclined and outwardly curved. The median pronotal process curves downwards posteriorly and extends as far, or a little further, than the apices of the folded tegmina. The tegmina are long and narrow. M and Cu1 are either closely adjacent and linked by a very short cross-vein *m-cu*1 or else basally fused; *m-cu*2 is lacking. There is sometimes a tendency for the venation to be reticulate towards the apices of the tegmina.

Type species—*Centrotus transiens* Walker.

Cebes transiens (Walker)

(Fig. 44, B)

Centrotus transiens Walker, 1851, List.Homopt.Brit.Mus. 2: 624.

Sertorius areolatus Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 23.

Cebes transiens (Walker) Distant, 1916, Ann.Mag.Nat.Hist. 18 (8): 39.

Length, ♂, 6·5, ♀, 7·5 mm. Width across lateral pronotal processes 3·5-4 mm. Coloration brown. Pronotum with pale golden hairs, the upper surface of the lateral processes reticulately ridged and conical, apically narrow, slightly diverging and outwardly curved. Tegmen vitreous, except basally; veins brown.

Type Location—British Museum.

Type Locality—Australia.

Known distribution elsewhere—Braidwood (New South Wales); Swifts Creek, Studley Park (Victoria).

Cebes godingi Distant

(Fig. 44, A)

Cebes godingi Distant, Ann.Mag.Nat. (8) 18: 39.

Length, 6 mm. "Head, pronotum and legs testaceous. Tegmina sub-hyaline, wrinkled, the base and veins testaceous. Anterior lateral processes of pronotum very robust, only obtusely narrowed at apices, moderately directed upwardly and outwardly, the margins

distinctly carinate, the anterior area centrally carinate, the posterior process tricarinate, its apex slightly passing the tegminal apices. Tegmina with the third apical cell crossed by several transverse venules."

Type Location—British Museum.

Type Locality—Australia.

Alocebes gen.nov.

Sturdy brown insects with vitreous tegmina. The pronotum, which is rugose, has raised reticulations on the lateral processes, which are short, broad, 3-sided and slightly dorsally directed. Viewed dorsally, their anterior margins lie posteriorly to the central part of the pronotum and they extend laterally only slightly beyond the humeral angles. The median pronotal ridge is well-defined and carinate between the lateral arms and the scutellum. The posterior process, anteriorly, is approximately oval in outline and slightly curved downwards posteriorly. It extends apically almost as far as the apices of the folded tegmina. M and Cul are basally distinct and there is a wide cross-vein, *m-cu*1 which is closer to the fork of M than to the bases of the 2 veins.

Type species—*Alocebes dixoni* sp.nov.

Alocebes differs from *Cebes*, to which it is closely related, in the considerably greater depth of the lateral pronotal processes, when viewed from in front, and in the position of cross-vein *m-cu*1.

Alocebes dixoni sp.nov.

(Fig. 44, C)

Length, ♀, 7 mm. Width across lateral pronotal processes, 3·7 mm. Coloration, dark brown. Tegmen vitreous with obscure brown markings, basally coriaceous; veins brown.

Holotype ♂, in the National Museum of Victoria. (Yarra Junction, 5/4/19, J.E. Dixon, coll.).

Pogonella gen.nov.

Robust brown, or black, sexually dimorphic insects. The pronotum has a pair of lateral processes which are considerably larger in the ♀ than in the ♂. In the ♂, these processes, which are broadly triangular, are almost horizontal and only curved a little backwards and sometimes upwards. In the ♀ they are, in some species, more dorsally directed. There is a central longitudinal ridge on the pronotum which is continuous with the median extension; the latter, which is slightly sinuate, and curves downwards apically, extends almost as far as the apices of the folded tegmina. The tegmina are broad and M and Cul, though proximally closely adjacent to each other, usually retain their separate identity. The only cross vein linking these veins is *m-cu*3.

Type species—*Centrotypus minutus* Goding.

Pogonella differs from *Acanthucus* in lacking an anterior median, vertical pronotal process; in having a less sinuate posterior pronotal process and in having more pronounced sexual dimorphism.

Pogonella minutus (Goding) (comb.nov.)

(Fig. 43, J)

Centrotypus minutus Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 28.

Length, ♂, 3·8 mm, width across pronotal horns, 2 mm; length, ♀, 4·2 mm; width across pronotal horns, 2·2 mm. General coloration dark brown or black. Lateral expansions in both sexes triangular, transverse and horizontal, but slightly longer and narrower in the ♀ than in the ♂. Area of pronotum between lateral horns, convex. Tegmen vitreous, sometimes partially suffuscd with pale brown, basally brown, punctate.

Type Location—Unknown (not in United States National Museum).

Type Locality—not given.

Known distribution elsewhere—"South Australia"; Tamworth, Sydney, Mullaley (New South Wales); Binna Burra (Queensland).

Pogonella bispinus (Stål) (comb.nov.)

(Fig. 43, K, L)

Acanthucus bispinus Stål, 1869, Övfers.Vetensk.Akad.Förh.Stockh. 24: 288.

Acanthucus euryone Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 90 (syn.nov.,.

Acanthucus eurynomus Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 91 (syn.nov.).

Length, ♂, ♀, 4-5 mm. Coloration, brown or blackish-brown. Lateral pronotal extensions horizontal, transverse in ♂, slightly rccurved and longer and narrower in ♀. Median pronotal process consisting of a widely rounded and only slightly elevated carina, somewhat higher in the ♀ than the ♂. Tegmen purplish brown, sometimes in part vitreous.

Type Location—Natural History Museum, Stockholm.

Type Locality—New Holland.

Known distribution elsewhere—Blackheath, Mullaley (New South Wales); Fern Tree Gully, Timbertop (Victoria); Lord Howe Island.

Pogonella dromedarius (Kirkaldy) (comb.nov.)

(Fig. 43, G)

Acanthucus dromedarius Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 377.

Length, ♀, 5·5 mm. Gencral coloration chocolate or ochreous brown. Lateral pronotal processes short, robust, transverse and slightly curved in an upward direction.

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Known distribution elsewhere—Bunya Mountains (Queensland).

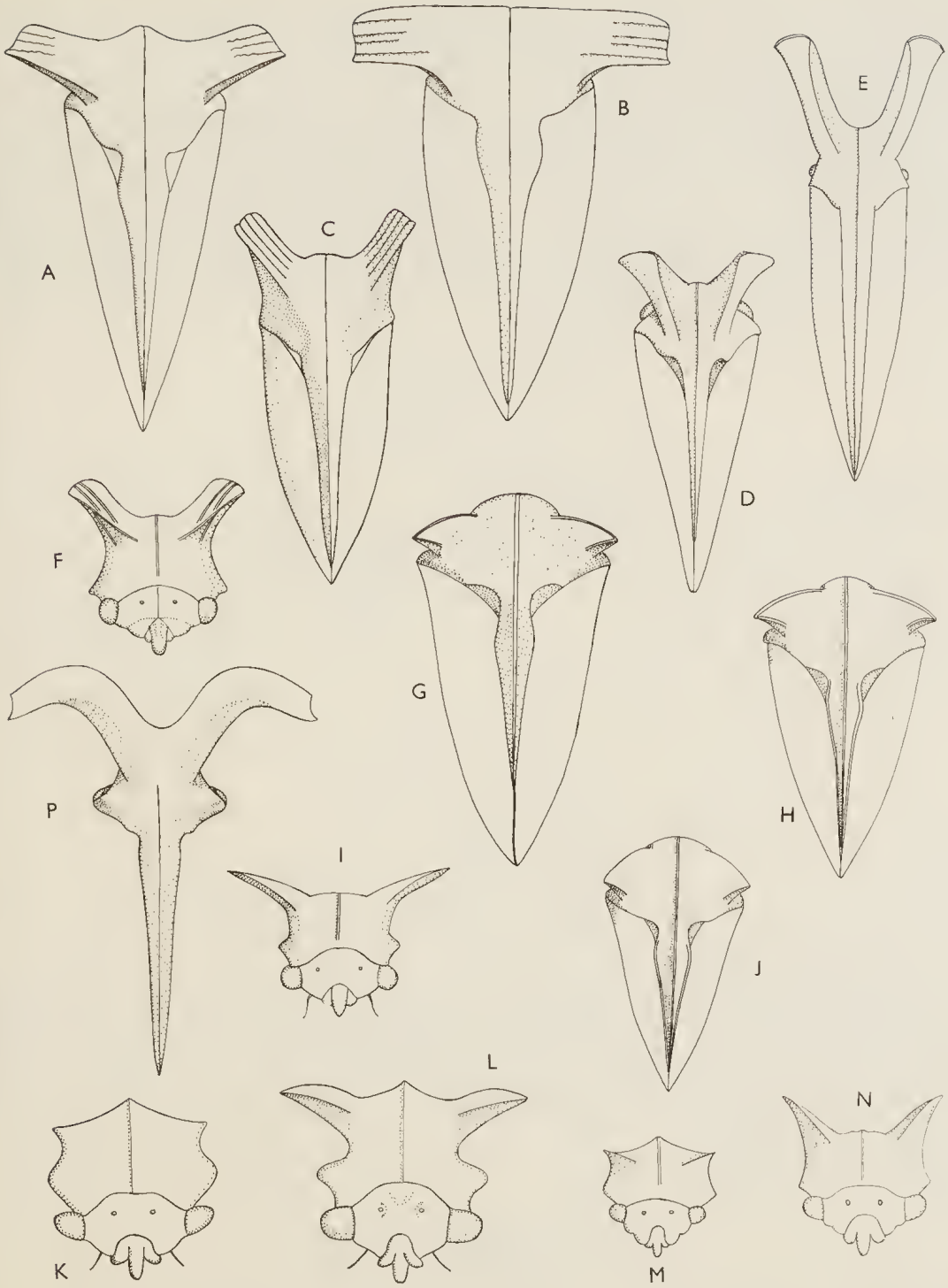


Fig. 43: A, *Eufairmairia fraternus;* B, *Eufairmairiella curvicaudus;* C, *Goddefroyinella neglectus;* D, *Ceraon tasmaniae;* E, *Ceraon gracilis;* F, *Cebes transiens*, head and pronotum; G, *Pogonella dromedarius;* H, *Pogonella minutus*, ♀; I, *Otinotoides australis*, head and pronotum; J, *Pogonella minutus*, ♂; K, *Pogonella bispinus*, ♂, head and pronotum; L, *P. bispinus*, ♀, head and pronotum; M, *Alosextuis carinatus*, ♂, head and pronotum; N, *A. carinatus*, ♀, head and pronotum.

Lubra Goding

Lubra Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 30.

Dark brown insects with a pair of strap-shaped processes which may be vertical, outwardly directed, or inwardly curved. The apices of the processes are inflated and of variable shape and each frequently bears a wide-based spine-shaped external projection. The pronotum, including the vertical processes, is rugose, the rugosity consisting of cell-shaped areas with raised walls from which arise long delicate hairs. The median process is straight, or slightly sinuate, and extends posteriorly almost as far as the apices of the folded tegmina. In the tegmina, veins M and Cu 1 are distinct for their whole lengths; cross-vein *m-cu*1, is sometimes, and *m-cu*3, always present.

Type species—*Oxyrhachis spinicornis* (Walker).

Lubra spinicornis (Walker)

(Figs 8, C; 42, I)

Oxyrhachis spinicornis Walker, 1862, J.Ent. 1: 316.

Lubra regalis Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 30 (syn.nov.).

Length, ♂, 5-6 mm, ♀, 6-6·2 mm. Male genitalia as in Fig. 8, C.

Type Location—British Museum.

Type Locality—Moreton Bay, Queensland.

Known distribution elsewhere—National Park, Fletcher, Brisbane (Queensland).

Ceraon Buckton

Daunus Stål, 1866, Berlin, Ent. Zeit. 10: 386 (preoccupied).

Ceraon Buckton, 1903, Monog. Membrac. 228.

Zanophora Kirkaldy, 1904, Entomologist, 37:279 (new name, unnecessary).

Sinenodus Goding, 1931, J. N. Y. Ent. Soc. 39:311.

Brown or reddish-brown insects, ranging in length from 6 to 12 mm, (not including the pronotal processes). The anterior pronotal extensions are vertical, or forwardly directed, and apically clubbed. The clubs are four-sided and the anterior sides, which are rugose, and may be ridged, slope backwards towards the transverse apices; the posterior sides are flat. The median pronotal process extends almost as far as the apices of the folded tegmina. In the tegmina, veins M and Cu 1 are basally distinct and cross-veins *m-cu*1 is sometimes, and *m-cu*3 always present.

Type species—*Ceraon tumescens* Buckton.

Ceraon tasmaniae (Fairmaire)

(Fig. 43, D)

Centrotus tasmaniae Fairmaire, 1846, Ann.Soc.Ent.Fr. (2) 4: 513.

Centrotus contractus Walker, 1851, List.Homopt.Brit.Mus. 2: 622.

Centrotus truncaticornis Walker, 1858, Ins.Saund.Homopt. 81.

Ceraon tumescens Buckton, 1903, Monog.Membrac. 229 (syn.nov.).

Daunus succisus Buckton, 1903, Monog.Membrac. 226 (syn.nov.).

Zanophora leda Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 89 (syn.nov.).

Length, ♂, ♀, 10-11 mm. General coloration brown.

Type Location—Type apparently not in existence.

Type Locality—Melbourne.

Known distribution elsewhere—Adelaide (South Australia); Hobart (Tasmania); Tomalla, Tubrabucca (New South Wales); Lancefield (Victoria).

Ceraon vitta (Walker)

(Fig. 42, A)

Centrotus vitta Walker, 1851, List.Homopt.Brit.Mus. 2: 626.

Oxyrhachis contorta Walker, 1859, Ins.Saund.Homopt. 66.

Zanophora albovittata Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 90 (syn.nov.).

Length, ♂, ♀, 6 mm. This species may be distinguished by its size and vitreous tegmina, which may have a longitudinal hyaline-brown stripe extending their full length. The appendix likewise may be hyaline-brown.

Type Location—British Museum.

Type Locality—Unknown.

Known distribution elsewhere—Bundaberg, Brisbane (Queensland); Woodend (Victoria).

Ceraon gracilis Goding

(Fig. 43, E)

Daunus gracilis Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 33.

Sinenodus gracilis (Goding), 1931, J.N.Y.Ent.Soc. 39: 311.

Length, ♀, 7-7·5 mm. General coloration brown with white scales (similar to those of *Goddefroyinella indicans*). Lateral pronotal processes four-sided, strongly forwardly and somewhat upwardly, and slightly outwardly, directed with 3 well defined parallel ridges on the ventral surface. Posterior pronotal process flattened, parallel-sided anteriorly, apically extending as far as the apices of the folded tegmina. Tegmina apically acute; venation somewhat reticulate.

Type Location—Unknown (not in U.S. National Museum).

Type Locality—Beverley, Western Australia.

Known distribution elsewhere—Carnarvon (Western Australia).

Sextius Stål

Sextius Stål, 1866, Hemipt.Afric. 4: 88.

Insects, green in colour when alive, usually with a pair of lateral pronotal processes, which may be brown anteriorly. These may be transverse, or forwardly projecting, and vary in size and shape and may be altogether absent. The posterior pronotal process is

keel-shaped and curves downwards posteriorly. It extends as far, or slightly further, than the apices of the folded tegmina. The whole of the pronotum is evenly pitted. The venation of the tegmen is apically reticulate, M and Cu 1 are basally distinct and cross-vein *m-cu*1 is present.

Several species of *Sextius* have been described and these are listed below. No descriptions are given, since it is doubtful whether any merit separate specific differentiation. So far as is known, all forms feed on *Acacia*.

Type species—*Centrotus virescens* Fairmaire.

Sextius virescens (Fairmaire)

(Figs 4, C; 5, I; 8, D)

Centrotus virescens Fairmaire, 1846, Ann.Soc.Ent.Fr. (2) 4: 515.

Ceresa suffusa Walker, 1851, List.Homopt.Brit.Mus. 2: 530.

Type Location—Unknown (probably not in existence).

Type Locality—New Holland.

Sextius assimilis Kirkaldy

Sextius assimilis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 376.

Type Location—H.S.P.A., Honolulu.

Type Locality—Sydney, New South Wales.

Sextius atromaculatus Distant

Sextius atromaculatus Distant, 1916, Ann.Mag.Nat.Hist. (8): 18: 35.

Type Location—British Museum.

Type Locality—Queensland.

Sextius bucephalus Distant

Sextius bucephalus Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 34.

Type Location—British Museum.

Type Locality—Sydney, New South Wales.

Sextius depressus Goding

Sextius depressus Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 12.

Type Location—United States National Museum.

Type Locality—Undetermined.

Sextius interposita (Buckton)

Pterosticta interposita Buckton, 1903, Monog.Memb. 231.

Type Location—Unknown (not in British Museum).

Type Locality—Adelaide, South Australia.

Sextius kurandae Kirkaldy

Sextius kurandae Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 377.

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Sextius major Distant

Sextius major Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 34.

Type Location—British Museum.

Type Locality—Peak Downs, Queensland.

Sextius occidentalis Jacobi

Sextius occidentalis Jacobi, 1909, Faun.S.W.Aust.Michaelsen u. Hartmeyer 2: 338.

Type Location—Unknown.

Type Locality—Dirk Hartog Island.

Sextius reticulatus Distant

Sextius reticulatus Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 34.

Type Location—British Museum.

Type Locality—"Australia, N.W. Coast."

Sextius rubrilineus (Buckton)

Pterosticta rubrilineus Buckton, 1903, Monog.Memb. 230.

Pterosticta xantha Buckton, 1903, Monog.Membrac. 231.

Type Location—British Museum.

Type Locality—Not known.

Sextius spretus (Buckton)

Pterosticta spretus Buckton, 1903, Monog.Membrac. 230.

Sextius longinotum Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 377.

Type Location—British Museum.

Type Locality—Adelaide, South Australia.

Sextius tenuis Goding

Sextius tenuis Goding, 1926, J.N.Y. Ent.Soc. 34: 245.

Type Location—United States National Museum.

Type Locality—Homebush, New South Wales.

Eutryonia Goding

Eutryonia Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 34.

Gelastorrhachis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 372.

Insects approximately 5 mm in length and dark reddish brown in colour, sometimes with yellowish-brown markings. The pronotum, which is pitted, consists anteriorly of a vertical column which is in continuous alignment with the vertex of the head. The top of the column is inflated and has a pair of lateral, acute, processes of varying size, and a rounded posterior protuberance. At the base of the column, posteriorly, the scutellum is swollen and the posterior keel-shaped process, which is sinuate, does not extend as far as the apices of the folded tegmina. In the tegmina, which have golden hairs both on, and between the veins, M and Cu 1 are either separate veins for the whole of their lengths or else proximally fused for a short distance; the only linking cross-vein is *m-cu*3. There is a tendency towards reticulate venation at the apices of the tegmina. Because of the high degree of variability of the shape of the dorsal process, all the several described species are, for the time being, regarded as synonyms of the type species.

Type species—*Centrotus monstrifer* Walker.

Eutryonia monstrifer (Walker)

(Fig. 42, J)

Centrotus monstrifer Walker, 1858, Ins.Saund.Homopt. 80.

Oxyrhachis ponderifer Walker, 1862, J.Ent. 1: 317.

Hypsoprora cassis Buckton, 1903, Monog.Membrac. 60.

Eutryonia monstrifer (Walker) Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 34.

Gelastorrhachis clavata Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 373 (syn.nov.).

Gelastorrhachis diadema Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 373 (syn.nov.).

Eutryonia gracilis Goding, 1928, J.N.Y. Ent.Soc. 34: 243 (syn.nov.).

Type Location—British Museum.

Type Locality—" Hunter River."

Known distribution elsewhere—Brisbane, National Park, Lawes, Tambourine Mountains (Queensland).

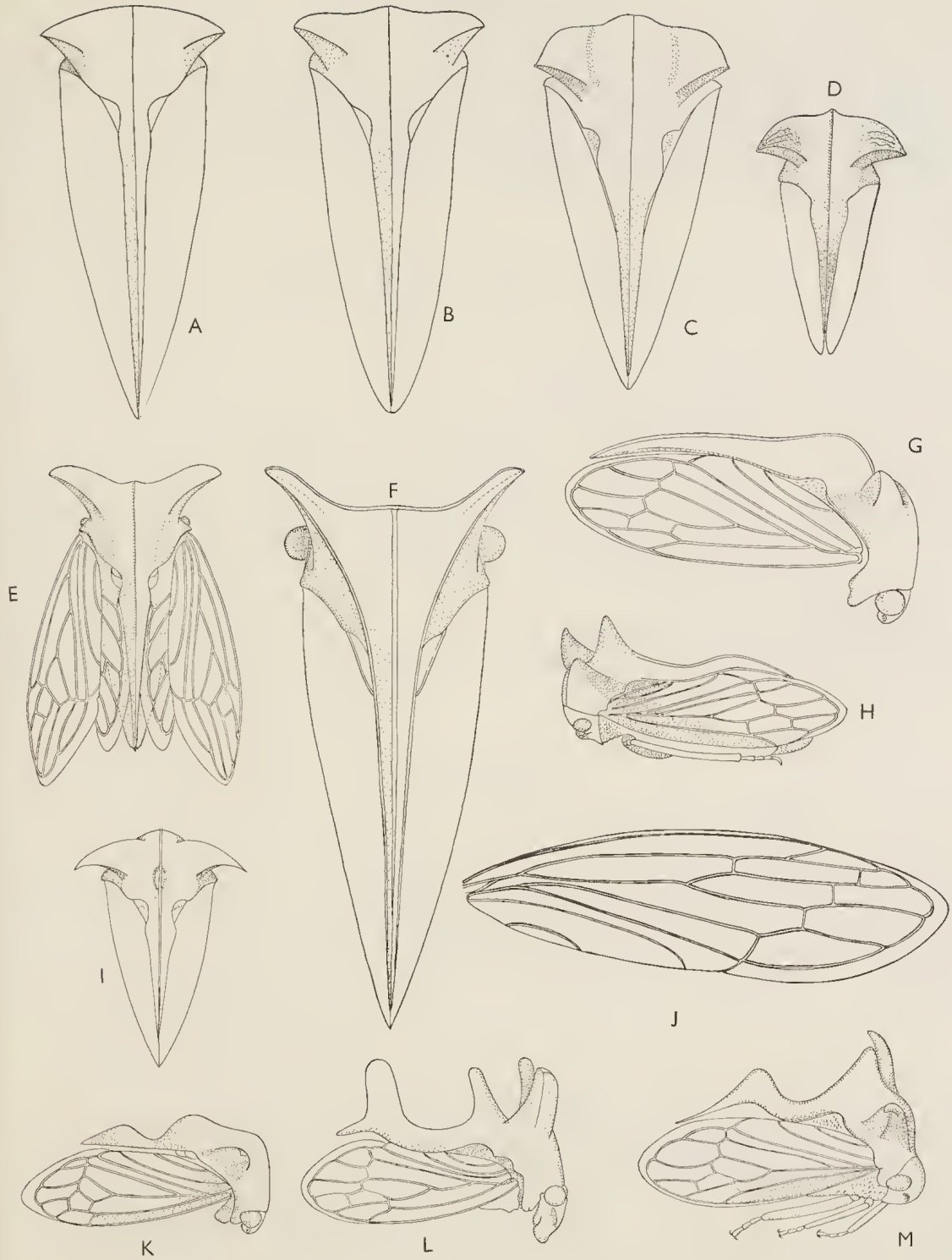


Fig. 44: A, *Cebes godingi;* B, *Cebes transiens;* C, *Alocebes dixoni;* D, *Acanthucus festivus;* E, *Kurandella iasis;* F, *Sarantus nobilis;* G, *Bucktoniella pyrmamidatus;* H, *Acanthucus trispinifer;* I, *Acanthucus nivalis;* J, *Sarantus nobilis,* tegmen; K, *Alocanthella fulva;* L, *Acanthucalis macalpini;* M, *Acanthucus rufiventris.*

Goddefroyinella Distant

Goddefroyinella Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 22.

The pronotum has a pair of longitudinally-ridged, wedge-shaped, forwardly directed processes. The posterior process, which is medially carinate, extends horizontally almost as far as the apices of the folded tegmina. The tegmina have reticulate venation; M and Cu1 are basally distinct and cross-vein *m-cu*1 is present.

Type species—*Goddefroyinella indicans* Distant.

Goddefroyinella neglectus (Buckton) (comb.nov.)

(Fig. 43, C)

Oxyrhachis neglectus Buckton, 1903, Monog.Membrac. 224.

Goddefroyinella indicans Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 22 (syn.nov.).

Sextius projectus Funkhouser, 1927, Rec.Aust.Mus. 15: 312 (syn.nov.).

Length, ♀, from the anterior margin of the pronotum, not including the projections, 6·2 mm. Length across projections, 3 mm. General appearance, grey. Head and thorax rugose, brown and sealed; remainder colourless hyaline; veins brown bordered with scales. Ventral surface of thorax and abdomen densely sealed with a mottled white appearance.

Type Location—British Museum.

Type Locality—Gayndah, Queensland.

Known distribution elsewhere—King George's Sound (Western Australia); Cunnamulla (Queensland).

Acanthucus Stål

Acanthucus Stål, 1866, Hemipt.Afric. 4: 87.

Insects ranging in length from 4 to 7 mm, brown in colour, the pronotum rugose and pitted, with golden hairs. The narrow lateral pronotal processes are transverse, slightly upwardly directed and slightly apically curved backwards. The median pronotal process has a characteristic triangular vertical projection anteriorly, and posteriorly is sinuate to a varying degree and keel-shaped. In the tegmina, veins M and Cu 1 are either proximally fused or else closely adjacent but distinct. The only linking cross-vein is *m-cu*3.

Type species—*Acanthucus gracilispinus* Stål.

Acanthucus conspurcatus Stål

Acanthucus conspurcatus Stål, 1869, Öfvers.Vetensk.Akad.Förh.Stockh. 24: 288.

Length, ♀, 4·8 mm. "Ferrugineus, punctatus, lateribus pectoris et scutelli dense griseo-sericeis; thoracis cornibus lateralibus mediocribus, antrorsum et distinctus sursum vergentibus, levissime curvatis, carina longitudinale media pone cornua illa in angulum obtusum elevata, processa postice sensim leviter curvate; tegminibus sordide hyalinis."

Type Location—Natural History Museum, Stockholm.

Type Locality—"Australia, occid."

Acanthucus kershawi Goding

Acanthucus kershawi Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 17.

Sextius obtusus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 377 (syn.nov.).

Length, ♂, 3·5 mm; ♀, 4 mm. "Prothorax inclined backward from base, piceous brown covered with yellow hairs; lateral horns short, turned directly outward, horizontal, slender, very acute; posterior process obtusely angled at base, thereafter slender, strongly sinuous to decurved acuminate apex, which does not reach the tips of the tegmina."

Type Location—United States National Museum.

Type Locality—Thornleigh, Blue Mountains, New South Wales.

Known distribution elsewhere—Sydney (New South Wales).

Acanthucus rufiventris (Walker)

(Fig. 44, M)

Centrotus rufiventris Walker, 1851, List.Homopt.Brit.Mus. 2: 616.

Length, ♀, 7 mm. "Ferruginous, thinly clothed with shining yellow hairs. Forechest roughly punctured, low and inclined backward in front, distinctly ridged; shoulders rounded, not prominent. Horns above stout, conical, prismatic, diverging slightly ascending. Hind appendage slender, extending to the tip of the abdomen, much attenuated toward the tip, which is very acute, armed with two erect, high, compressed, conical acute humps, one at the base, the other in the middle."

Type Location—British Museum.

Type Locality—Moreton Bay, Queensland.

Acanthucus trispinifer (Fairmaire)

(Fig. 44, H)

Centrotus trispinifer Fairmaire, 1846, Ann.Soc.Ent.Fr. (2) 4: 515.

Acanthucus gracilispinus Stål, 1869, Öfvers.Vetensk.Förh.Stockh. 24: 287 (syn.nov.).

Acanthucus gracilispinus Stål, Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 15.

Length, ♂, 4, ♀, 5·2-5·5 mm. Width across lateral horns, 3 mm. General coloration brown with golden, lateral, pubescence at the sides of the thorax anteriorly. Median, central, elevated pronotal process thorn shaped; posterior pronotal process, strongly sinuate. Tegmen mottled hyaline, brown with a whitish area at the apex of the clavus.

Type Location—Unknown ("in collection Westwood").

Type Locality—New Holland.

Known distribution—Adelaide (South Australia); National Park (Queensland); Sydney (New South Wales); Bruni Island (Tasmania); Bunbury (Western Australia).

Acanthucus nivalis Distant

(Fig. 44, I)

Acanthucus nivalis Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 28.

Length, ♂, 5, ♀, 6 mm; width across pronotal horns ♂ 2·8, ♀, 4 mm. General coloration dark brown with sparse whitish pubescence on the pronotum and on the tegmen, especially in the costal area; sides of thorax densely pubescent. Central dorsal process, broadly triangular, anteriorly forming a continuous curve with the anterior margin of the pronotum; lateral processes with a dorsal, longitudinal ridge. Tegmina hyaline brown with a small, colourless area between the arms of Rla and Rlb and at the apex of the dorsal suture.

Type Location—British Museum.

Type Locality—Brisbane, Queensland.

Acanthucus festivus Distant

(Fig. 44, D)

Acanthucus festivus Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 28.

Acanthucus flavidorsus Goding, 1926, J.N.Y.Ent.Soc. 34: 244 (syn.nov.).

Length, ♂, 4-5 mm; ♀, 5-6 mm. General coloration brown; anterior third of median pronotal process which may, or may not, be raised into a triangular prominence, yellow.

Type Location—British Museum.

Type Locality—Kuranda, Queensland.

Known distribution elsewhere—Tooloom (New South Wales).

Alocanthella gen.nov.

When viewed from in front the ventral sides of the lateral pronotal processes form an even concave curve and the dorsal sides are basally convex. In dorsal aspect these processes, which are triangular in section and apically acute, extend laterally only slightly beyond the humeral angles.

The median pronotal process which is keel-shaped and strongly sinuate, with 2 saddles and a median depression, extends almost as far as the apex of tegminal vein Cula. Anteriorly it is continued as a median ridge which extends almost as far as the anterior margin of the pronotum. In the tegmina M and Cul are basally fused.

Type species—*Alocanthella fulva* sp.nov.

Alocanthella fulva sp.nov.

(Fig. 44, K)

Length, ♀, 3·8 mm. General coloration golden-brown, the pronotum anteriorly partially suffused with dark brown. Tegmen, costal area as far as Rla and clavus, basally, brown, rugose; remainder vitreous with 2 hyaline transverse brown fasciae; veins brown. Head and thorax pilose; hairs pale gold. Pronotum rugose.

Holotype— ♀ from Lawes, Queensland (coll. N. Arndt., 11/44) in the Queensland Museum.

Acanthucalis gen.nov.

The pronotum is coarsely rugose with fine hairs, and the lateral processes, which are dorsally strongly ridged, curve upward and backwards. Apically they are acute and directed ventrally. The median pronotal process, posterior to the lateral processes, is elevated into a flattened, apically blunt, backwardly-projecting process. Posterior to this process it is depressed forming in profile a broad U-shaped curve; more distally it is raised into a broad, paddle-shaped, backwardly-projecting process and apically it is acute. In the tegmina M and Cul are basally fused.

Type species—*Acanthucalis macalpini* sp.nov.

Acanthucalis resembles *Acanthucus* in having an anterior vertical median pronotal process. It differs in the possession of also a posterior median process.

Acanthucalis macalpini sp.nov.

(Fig. 44, L)

Length, ♂, 4 mm. General coloration dark brown with areas of white pilosity. Tegmen vitreous, except basally where it is brown; veins brown.

Holotype— ♂ from Mt Barrow, 3,000 ft, Tasmania (coll. D. McAlpine, 1/60) in the Australian Museum.

Pogonotypellus gen.nov.

The face of the head, excluding the eyes, is as wide as long, and the hind margin of the face is strongly arched. The lateral pronotal processes are horizontal and apically acute and do not extend as far, laterally, as the humeral angles. The median pronotal process, which is continuous anteriorly with a ridge extending to the anterior margin of the pronotum, is apically curved downward. It extends in the ♂ as far as the apex of Culb and in the ♀ to Cula. In the tegmina M and Cul are basally fused and the only linking cross-vein is *m-cu*3.

Type species—*Pogonotypus australis* Goding.

Pogonotypellus resembles *Pogonotypus* Distant in pronotal characteristics, but differs in venational ones. Thus, in the former, the veins are in normal alignment, but in *Pogonotypus*, Rs, M3 + 4 and Cul basally, are all arched towards the costal margin of the tegmen, resulting in the cell enclosed by the arms of Cul being considerably larger than the other apical cells.

Pogonotypellus australis (Goding) (comb.nov.)

(Fig. 45, B, C)

Pogonotypus australis Goding, 1939, J.N.Y.Ent.Soc. 47: 332.

Length, ♂, 4 mm, ♀, 4·5 mm. Coloration, black or dark brown. Tegmen except basally and the costal area, vitreous, hyaline-brown or yellowish-brown, sometimes with irregular colourless areas.

Type Location—United States National Museum.

Type Locality—Tamworth, New South Wales.

Known distribution elsewhere—Springbrook, Toowoomba, Eagle Heights (Queensland).

Bucktoniella gen.nov.

The face of the head slopes posteriorly and is not in alignment with the anterior, vertical, part of the pronotum. The anterior median margin of the pronotum, as viewed from above, is not in alignment with the lateral processes and is convex. The lateral processes which are three-sided, and in dorsal aspect broadly triangular and backwardly curved, are almost horizontal; their dorsal margins are ridged. The posterior process, which is keeled, extends as a ridge as far as the anterior margin of the pronotum. Posterior to the lateral processes it may be straight or anteriorly convex and it does not extend as far as the apices of the folded tegmina.

In the tegmina M and Cu 1 are proximally fused for a short distance and *m-cu*3 is the only linking cross-vein.

Type species—*Acanthucus pyramidatus* Funkhouser.

Bucktoniella differs from *Acanthucus* in the absence of a median elevation and in having broader and more flattened lateral pronotal processes.

Bucktoniella pyramidatus (Funkhouser) (comb.nov.)

(Fig. 44, G)

Acanthucus pyramidatus Funkhouser, 1927, Rec.Aust.Mus. 15: 310.

Length, ♂, 6·6, ♀, 7·5 mm. Rugose, general coloration reddish or ochreous brown with fine white hairs. In ♂, lateral pronotal processes dorsally convex, slightly apically downwardly curved. Posterior process steeply tectiform, slightly sinuate between lateral processes, thereafter straight. In ♀, lateral processes, upwardly curved from the centre, their apices curved slightly downwards. Posterior process steeply arched immediatcly posterior to the lateral processes, thence straight. Tegmen vitreous, veins brown.

Type Location—Australian Museum.

Type Locality—Wedge Bay, Tasmania.

Known distribution elsewhere—Franklin (Victoria).

Kurandella gen.nov.

The face of the head is almost flat and the eyes are prominent and visible from above. The pronotum, anteriorly, is vertical and in alignment with the face and has a median ridge which extends from the anterior margin to the posterior apex. The anterior margins of the oblique lateral processes are at right angles to the median ridge; they have 3 distinct sides and on the dorsal surface are apically depressed between the marginal ridges. The posterior process extends almost as far as the apices of the folded tegmina.

The tegmina are apically acute, M and Cul are fused proximally for a third of their lengths, *m-cu*3 is the only cross vein vetween them, and all 4 apical veins are parallel with the hind margin of the tegmen distal of the apex of the clavus.

Type species—*Acanthucus iasis* Kirkaldy.

Kurandella differs from *Acanthucus* in lacking a median pronotal elevation and from other known Australian genera in the characters of the pattern of tegminal venation.

Kurandella iasis (Kirkaldy) (comb.nov.)

(Fig. 44, E)

Acanthucus iasis Kirkaldy, 1907, Bull.Hawaii Sug.Ass.Exp.Sta. 3: 90.

Length, ♀, not including the lateral pronotal proccsses, 5·8 mm. General coloration brown with golden hairs.

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Known distribution elsewhere—Sydney (New South Wales).

Alosextius gen.nov.

Pale greenish-brown, scxually dimorphic, insects. Thc pronotum, which is coarsely punctate, has a sharp, median carina which extcnds horizontally onto the foliaceous, straight, median pronotal process. The lateral pronotal processes are tricarinate and have well-defincd marginal rims. In the ♂, in which these processes are horizontal and broadly triangular and extend laterally only slightly beyond the humeral angles, they lie at a lower level than the median carina. In the ♀, the lateral pronotal processes are anteriorly, and dorsally, produced and apically recurved and acute. The median pronotal proccss cxtcnds almost as far as the apices of the folded tegmina.

In the tegmina M and Cu 1 are basally fused, cross-vein *m-cu*2 is lacking and cross-vein *m* is in continuous alignment with R + M 1 + 2.

Type specics—*Acanthucus carinatus* Funkhouser.

Alosextius differs from *Acanthucus* in lacking a dorsal median pronotal process and in having a horizontal posterior pronotal process.

Alosextius carinatus (Funkhouser) (comb.nov.)

(Figs 8, E; 43, M, N)

Acanthucus carinatus Funkhouser, 1927, Rec.Aust.Mus. 15: 311.

Pogon flavescens Goding, 1930, Amer.Mus.Novit. 421: 25 (syn.nov.).

Length, ♂, 4·2-5·2 mm; ♀ (excluding lateral pronotal processes) 5·5 mm. General coloration pale grecnish or yellowish-brown; margins of pronotal processes, brown; tegmen, yellowish-hyaline. Male genitalia as in Fig. 8, E.

Type Location—Australian Museum.

Type Locality—" South Australia."

Known distribution elsewhere—Brisbane (Quecnsland).

Dingkana Goding

Dingkana Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 9

Closely rescmbling *Terentius* in general appearancc but differs in having, in the tegmina, M and Cu 1 basally fused and *m-cu*2 as well as *m-cu*3 present.

Type species—*Dingkana borealis* Goding.

Dingkana borealis Goding

(Fig. 45, G)

Dingkana borealis Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 9.

Length, ♀, 5-7 mm. General coloration black, the pronotum finely rugose with golden yellow hairs. Pronotum lacking a median ridge anteriorly, the posterior median process broadly flattened with a slight median ridge, not extending as far as the apices of the folded tegmina. Tegmen pale hyaline brown.

Type Location—Unknown (not in U.S. National Museum).

Type Locality—Cairns, Queensland.

Known distribution elsewhere—Innisfail (Queensland).

Sertorius Stål

Sertorius Stål, 1866, Berlin Ent.Zeit. 10: 387.

Black insects ranging in length from 6·5 to 8 mm. Part of the vertex of the head and the eyes are visible in dorsal aspect. The surface of the pronotum is pitted and bears fine golden hairs. There are a pair of slightly projecting horizontal spine-like processes. The median pronotal process which is anteriorly wide and apically narrow, extends almost as far as the apices of the folded tegmina. In the tegmina veins M and Cu 1 are proximally separate, cross-vein *m-cu*1 may be present and *m-cu*2 is always lacking.

Type species—*Centrotus australis* Fairmaire.

Sertorius australis (Fairmaire)

(Figs 5, B; 45, F)

Centrotus australis Fairmaire, 1846, Ann.Soc.Ent.Fr. (2) 4: 518.

Centrotus binotatus Walker, 1858, Ins.Saund.Homopt. 81.

Centrotus obstans Walker, 1858, List.Homopt.Brit.Mus.Supplement. 162.

Length, ♂, ♀, 6·8-8 mm. Pronotum very slightly keeled anteriorly; lateral processes conical, acute, horizontal, very short, very slightly curved backward.

Type Location—Unknown, type probably not in existence.

Type Locality—New Holland.

Known distribution—Ringwood, Lake Hattah (Victoria); Gordon (New South Wales).

Collected on—Hakea.

Sertorius luteus (Buckton)

Sphaerocentrus luteus Buckton, 1903, Monog.Membrac. 244.

Sertorius luteus (Buckton) Distant, 1916, Ann.Mag.Nat.Hist. 18 (8): 26.

Sertorius castaneus Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 25.

Sertorius affinis Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 25.

Length, ♂, ♀, 7-8 mm.

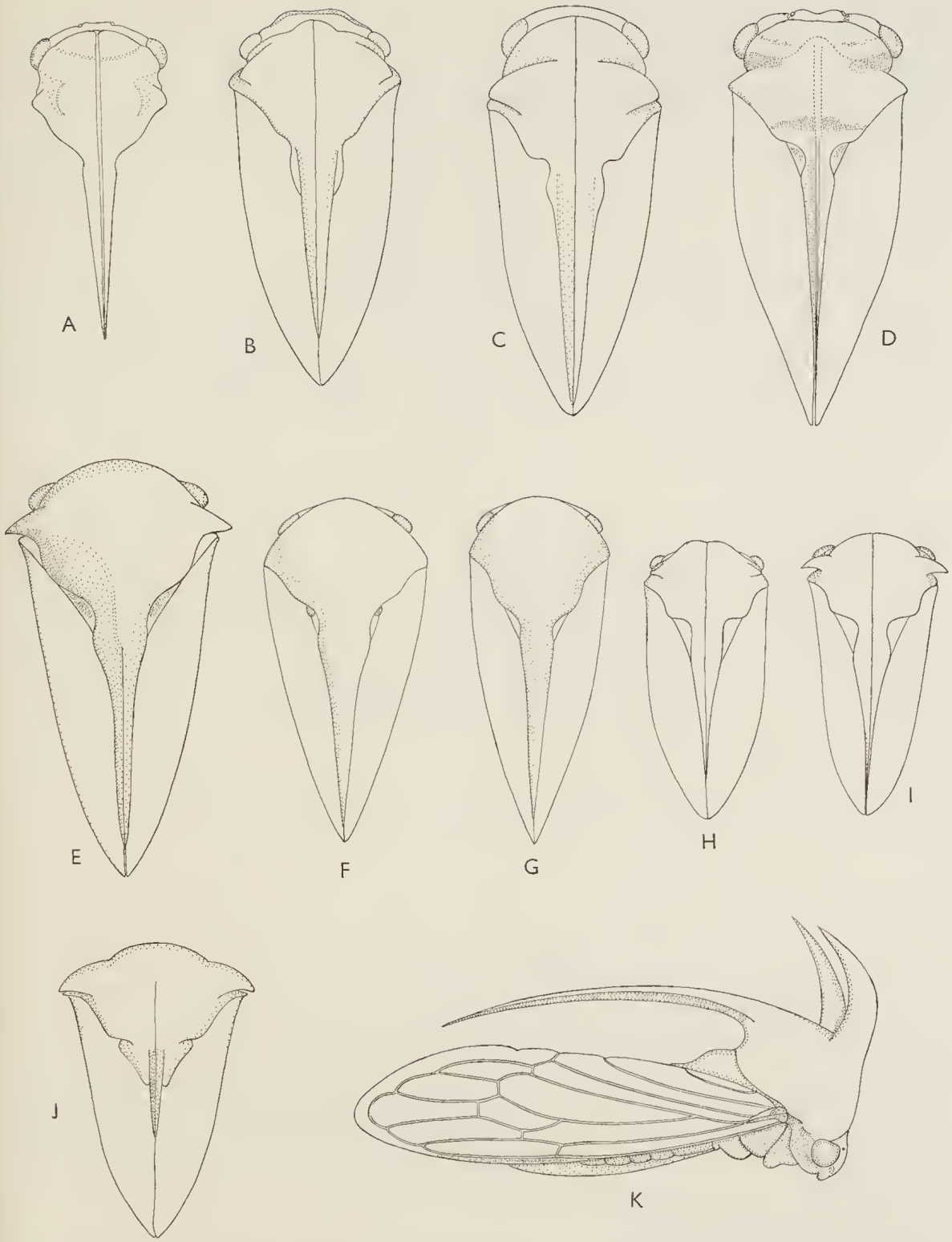


Fig. 45: A, *Anzac bipunctatus*, head and pronotum; B, *Pogonotypellus australis*, ♂; C, *P. australis*, ♀; D *Anzac bipunctatus;* E, *Sertorius australis;* F, *Terentius convexus;* G, *Dingkana borealis;* H, *Crito festivus*, ♂; I, *C. festivus*, ♀; J, *Centrotypus nigris;* K, *Leptocentrus gracilis.*

Type Location—British Museum.

Type Locality—Adelaide, South Australia.

Known distribution elsewhere—Sydney (New South Wales).

Terentius Stål

Terentius Stål, 1869, Öfvers.Vetensk.Akad.Förh.Stockh. 24: 286.

Black or brown insects which closely resemble those in the genera *Sertorius* and *Dingkana*, differing from *Sertorius* in having considerably smaller lateral pronotal extensions and from *Dingkana* in having, in the tegmina, M and Cu 1 as separate veins for the whole of their lengths, *m-cu*1 sometimes present and *m-cu*2 lacking. The median posterior pronotal process, which does not reach as far as the apices of the folded tegmina, is sharply keeled.

Type species—*Terentius convexus* Stål.

Terentius convexus Stål

(Figs 42, G; 45, F)

Terentius convexus Stål, 1869, Öfvers.Vetensk.Akad.Förh.Stockh. 24: 286.

Length, ♀, 6·6-7·5 mm. Head black or brown. Pronotum black, or, brown, coarsely rugose with a slight median anterior ridge. Median pronotal process anteriorly constricted. Tegmen hyaline-brown; R and M proximally dark brown, distally, and the remaining veins, pale brown; veins bordered with golden hairs.

Type Location—Natural History Museum, Stockholm.

Type Locality—Rockhampton, Queensland.

Known distribution elsewhere—Manly, Bowral (New South Wales); Kuranda, Brisbane (Queensland).

Collected on—Casuarina, Grevillea.

Terentius rolandi Distant

(Fig. 42, C)

Terentius rolandi Distant, 1915, Ann.Mag.Nat.Hist. (8): 16: 492.

Length, ♀, 7 mm. Head and pronotum shining black, pronotum finely punctate, lacking an anterior median ridge. Posterior pronotal process broadly triangular, not anteriorly constricted. Tegmen, R and M and the intervening area dark brown, posteriorly pale brownish-hyaline, veins pale brown; apex of tegmen deep parchment brown, veins in high relief.

Type Location—British Museum.

Type Locality—Kuranda, N. Queensland.

Known distribution elsewhere—Cairns, Dunk Island (Queensland).

Anzac Distant

Anzac Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 19.

The pronotum, which is punctate and longitudinally carinate, lacks lateral pronotal processes, although lateral, crescentric ridges may be present on the dorsal surface. The median pronotal process, which is widely tectiform and narrowly acute apically, terminates between the apices of tegminal veins Cula and Culb. In the tegmina M and Cul, are basally fused.

Type species—*Membracis bipunctatus* Fabricius.

Anzac bipunctatus (Fabricius)

(Fig. 45, A, D)

Membracis bipunctatus Fabricius, 1775, Syst.Ent. 677.

Anzac bipunctatus (Fabricius), Distant, 1916, Ann.Mag.Nat.Hist. (8): 18: 43.

Length, ♂, 3·2, ♀, 4·2 mm. General coloration, ♀, pale yellowish-brown, ♂, dark chestnut brown. Tegmen vitreous; veins brown.

Type Location—British Museum (Banksian collection).

Type Locality—" Australia ".

Known distribution—Hobart (Tasmania); Mt Kosciusko (New South Wales); Adelaide (South Australia); Perth (Western Australia).

Collected on—Grasses.

In Distant's illustration of this species the tegmen is shown as having more cross veins than are present in the tegmina of insects provisionally identified as belonging to this species. Furthermore, the 2 black spots, referred to by Distant as being situated at the base of the tegmina, are lacking.

New Guinea and Indo-Malayan genera represented in Australia

Sarantus Stål

Sarantus Stål, 1863, Trans.Ent.Soc.Lond. (3) 1: 592.

Godingella Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 31 (syn.nov.).

Shining black rugose " tropical "-looking insects approximately from 9-12 mm in length (not including the lateral pronotal processes). The lateral pronotal processes are long, apically acute, and inwardly, or outwardly, turning. The median process, which extends to, or beyond, the folded tegmina, is apically acute. In the tegmina M and Cu 1 are basally distinct and cross-veins *m-cu*1 and *m-cu*3 are present.

Type species—*Sarantus wallacei* Stål (New Guinea).

Sarantus nobilis Kirkaldy

(Fig. 44, J)

Sarantus nobilis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 374.

Godingella queenslandensis Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 31 (syn.nov.).

Sarantus australensis Goding, 1926, J.N.Y. Ent.Soc. 34: 208 (syn.nov.).

Type Location—H.S.P.A., Honolulu.

Type Locality—Cairns, Queensland.

Otinotoides Distant

Otinotoides Distant, 1916, Ann.Mag.Nat.Hist. (8) 17: 320.

Insects, dark brown in colour, the pronotum rugose with sparse, fine, golden hairs. The lateral processes are transverse, slightly backwardly directed and apically acute. The median pronotal process is slightly sinuate and does not extend as far as the apices of the folded tegmina. The tegmina are apically broad; M and Cu 1 are confluent proximally but not fused together. The only cross-vein present is *m-cu*3.

Type species—*Centrotus pallipes* Walker (New Guinea).

Otinotoides australis Distant

(Fig. 43, J)

Otinotoides australis Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 40.

Length, 5 mm. "Pronotum brownish ochraceous, the anterior pronotal lateral processes black, or nearly black, and the area between them darker castaneous; posterior process, excluding base, black. Face pale castaneous. Tegmina dull stramineous, base costal and sub-costal areas and the apical margin black. Lateral processes of pronotum long, subacute, directed outwardly and a little upwardly, centrally carinate, the posterior process tricarinate, touching the scutellum, and then moderately convexly elevated, its apical half roundly deflected, its apex slender, subacute and almost reaching the tegminal apex."

Type Location—British Museum.

Type Locality—Queensland.

Otinotoides acuticornis (Goding) (comb.nov.)

Sertorius acuticornis Goding, 1926, J.N.Y. Ent.Soc. 34: 244.

Length, ♀, 7 mm. "Purplish-black, shining coarsely and evenly punctured with short pale yellow pubescence. Pronotum elevated and convex in front, produced each side high above humerals in a rather long, flat compressed acuminate horn directed outward, well upward, hind margins straight, front margin curved backward, both margins sharp, humerals prominent, deeply notched each side at base, slender, sides parallel to middle then gradually acuminate, dorsum seen from above broadly sinuate, apical third decurved Broad sides, scutellum densely creamy pubescent. Tegmina fuscous hyaline."

Type Location—United States National Museum.

Type Locality—Kuranda, Queensland.

Crito Distant

Crito Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 43.

Small black insects. The lateral pronotal processes are horizontal, transverse, broadly triangular in the ♂, in which they do not extend as far laterally as the humeral angles, and narrowly triangular in the ♀, in which they extend slightly beyond the humeral angles.

The median pronotal process is sinuate and roundly arched above the scutellum. It is downwardly curved posteriorly and does not reach as far as the apices of the folded tegmina. The tegmina are apically acute, M and Cu 1 are basally fused and the only cross-vein linking these veins is *m-cu*3. Rs may be separate from M 1 + 2 (but this probably represents merely an aberrant condition).

Type species—*Crito festivus* Distant.

Crito festivus Distant

(Fig. 45, H, I)

Crito festivus Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 43.

Length, ♂, 5, ♀, 6 mm. Coloration black. Tegmen hyaline brown or purplish brown, with or without vitreous areas.

Type Location—British Museum.

Type Locality—Queensland.

Known distribution elsewhere—Kerevat (New Guinea).

Incertae sedis

The species that follow almost certainly do not belong to the genera to which they were ascribed by their authors. As, however, identified specimens enabling their study are lacking, changes in their generic position cannot, at present be made.

Otinotus albosignatus Distant

Otinotus albosignatus Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 40.

Length, 7 mm. "Head and pronotum castaneous. Basal angles of scutellum and lateral angles of sternum whitely tomentose. Tegmina pale bronzy brown, the apical margin a little darker; venation prominent. Pronotum strongly centrally carinate, the posterior process tricarinate. The anterior lateral processes long, broad at base, subacute at apices, directed obliquely upwardly, apices not recurved."

Type Location—British Museum.

Type Locality—Queensland.

Otinotus doddi Distant

Otinotus doddi Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 40.

Length, 5 mm. "Head and pronotum fuscous brown, palely pilose, frontal pronotal area and face very largely and densely palely pilose. Tegmina pale hyaline, wrinkled, the prominent veins dull ochraceous, basal area fuscous and pilose. Pronotum very strongly centrally carinate, anterior lateral processes broad at base, subacute at apices, directed outwardly and a little upwardly, the apices slightly recurved."

Type Location—British Museum.

Type Locality—Townsville, Queensland.

Otinotoides intermedius Distant

Otinotoides intermedius Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 41.

Length, 5 mm. "Head and pronotum testaceous brown, obscurely, thickly, shortly, palely pilose. Lateral areas of the sternum and basal angles of scutellum palely ochraceously tomentose. Tegmina subhyaline, most of the venation, basal portions of the costal and subcostal areas, and the base testaceous brown. Pronotum centrally carinate, the lateral processes robust, upwardly and outwardly directed, their apices obtusely acute and a little recurved, their margins distinctly carinate. Posterior process tricarinate, robust, touching the scutellum above which it is a little convexly elevate, its apical half roundly deflected."

Type Location—British Museum.

Type Locality—Not on label, nor mentioned in the description.

Known distribution elsewhere—Largs Bay (South Australia); Gayndah, Peak Downs (Queensland).

Otinotoides spicatus Distant

Otinotoides spicatus Distant, 1916, Ann.Mag.Nat.Hist. (8) 18: 42.

Length, 6 mm. "Head and pronotum fuscous brown, obscurely shortly, palely pilose. Lateral areas of the sternum and basal angles of the scutellum palely ochraceously tomentose. Tegmina more or less fuscous brown, the central portion of claval area with somewhat obscure brassy reflexions. Pronotum strongly centrally carinate, the lateral processes broad and somewhat flattened on basal areas, subacute at apices, outwardly and a little upwardly directed, their apices distinctly recurved. Posterior process somewhat slender, its apical half roundly deflected, the apex acute and almost reaching the tegminal apices."

Type Location—British Museum.

Type Locality—Kuranda, Queensland.

Centrotypus occidentalis Goding

Centrotypus occidentalis Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 27.

Length, ♂, 6·5, ♀, 9 mm. "♂ ferruginous, the head, base of prothorax, excepting the edge, tips of lateral horns, chest, abdomen, femora, excepting the tips, black. ♀ differs from the male in being tawny yellow and ferruginous where the male is washed with black. Prothorax punctured, furnished with a percurrent median carina, dorsum convex armed on each side, above lateral angles, with a short, flat conical horn, compressed inferosuperiorly, turned directly outward and backward, the upper surface with the dorsum convex; posterior process stout at the base, not tectiform, sinuous along inferior border and gradually acuminate to the apex which reaches the tips of the tegmina. Tegmina vitreous, veins ferruginous, punctured at base, a blackish cloud near base of clavus."

Type Location—United States National Museum.

Type Locality—Swan River, Western Australia.

Centrotypus hospes Kirkaldy

Centrotypus hospes Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 378.

Length, 8 mm. "Black with yellowish pubescence. Scutellar tufts prominent, pale yellow. Tegmina vitreous, veins pale or dark ferruginous and horns slight, acuminate

turned directly outward, very slightly upward and backward, bases remote. Exterior subapical cell elongate, suboval."

Type Location—H.S.P.A., Honolulu (missing).

Type Locality—Sydney, New South Wales.

Sertorius brevicornis Goding

Sertorius brevicornis Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 21.

Length, ♀, 6 mm. Width including lateral horns, 4 mm. "Head, piceous, covered with yellow hairs, with an abbreviated median carina in the centre between the ocelli, two small tubercules below and forming a square with the ocelli, lateral borders with a denticle near the base.

Prothorax piceous brown, the dorsum convex, blackish along the middle and furnished with a strong, black median longitudinal carina; on each side of the dorsum, above lateral angles, is a short, stout, triquetrous auricular horn turned upward, which is blackish on the convex superior surface towards the very obtuse tip, which ends in a blunt point, pointing outward and a trifle backward; the horn is elevated but little above the middle of the dorsum, the posterior process is triquetrous tectiform, lightly gibbous at the base, broad for a distance, thereafter gradually acuminate to the apex, which reaches the end of the abdomen. Tegmina broad, basal third black, punctured and opaque, the remainder transparent, smoky; veins and a large spot on the disk, piceous. Sides of the chest and scutellum, yellow pubescent."

Type Location—Unknown.

Type Locality—"South Australia."

Sertorius tepperi Goding

Sertorius tepperi Goding, 1903, Proc.Linn.Soc.N.S.W. 28: 22.

Length, ♀, 6 mm, width including lateral horns, 3 mm. "Head black. Prothorax piceous brown, base black, punctured, furnished with a median percurrent carina and armed on each side above lateral angles, with a short, stout, triquetrous, acuminate horn, turned upward, very slightly outward and strongly forward, the upper surface marked with two or three small carinae, near the front edge, the posterior edge of each horn continued for some distance on the posterior process as a carina, parallel to the median carina; posterior process very broad and convex at base gradually narrowed to the middle, thereafter slender acuminate, reaching tips of tegmina. Tegmina smoky yellow basal fourth piceous, punctured and opaque, the remainder transparent, veins ferruginous, and thick."

Type Location—United States National Museum.

Type Locality—Bunbury, Western Australia.

Polonius froggatti Goding

Polonius froggatti Goding, 1939, J.N.Y. Ent.Soc. 47: 348.

Length, ♀, 5 mm. "Head longer than broad, finely punctate, hardly pubescent, blackish-brown, base highly arched. Pronotum blackish-brown, weakly yellow pubescent, base deeply impressed each side, convex in front, median carina strongly percurrent, subfoliaceous on the disk; humerals triangular, sub-prominent; suprahumerals short, triangular, tricarinate, upper surface irregularly carinate, lightly curved upward and outward, tips

blunt, recurved; posterior process slender from base which is slightly separated from the scutellum, basal third straight, middle third obliquely elevated, apical third horizontal and very slender, distant from margins of about as long as the tegmina."

Type Location—United States National Museum.

Type Locality—Tweed River, New South Wales.

Species recorded from Australia but of uncertain geographical origin

Doubt exists as to whether the membracids listed below really form part of the Australian fauna. In regard to the 2 first-named species, the specimens of both, on which 3 original descriptions were based, were presented to the Australian Museum by a Mr F.W. Shephard who lived at Broken Hill in New South Wales and both have "Broken Hill" on their locality labels.

It may be no more than a coincidence that both species represent insects which are quite unlike any other known Australian membracids, and which apart from the Holotypes, are not represented in any other institutional collections of Australian insects, but this is unlikely.

It is more probable that they were not collected in Australia, but received by Mr Shephard from an overseas correspondent.

The first of these 2 insects only doubtfully belongs to the Oriental genus, *Centrotypus* Stål, but because of uncertainty as to its origin no attempt has been made to determine its true generic position.

The second one, is undoubtedly correctly placed in the genus *Leptocentrus* Stål, of which all other known species have been recorded from Africa and the Oriental region.

Centrotypus nigris Funkhouser

(Fig. 45, J)

Centrotypus nigris Funkhouser, 1927, Rec.Aust.Mus. 15: 306.

Tricentrus pinguidorsis Funkhouser, 1927, Rec.Aust.Mus. 15: 308 (syn.nov.).

Length, ♂, 4·6, ♀, 6 mm. General coloration, black. Pronotum with an anterior, vertical, median ridge; lateral processes short, almost horizontal, anteriorly curved, posteriorly straight, posterior process short, extending a little beyond the claval sutures of the folded tegmina, wide anteriorly, apically acute.

Type Location—Australian Museum.

Type Locality—Broken Hill, New South Wales.

Leptocentrus gracilis Funkhouser

(Fig. 45, K)

Leptocentrus gracilis Funkhouser, 1927, Rec.Aust.Mus. 15: 307.

Length, ♀, 7 mm. "Long, slender, brown, punctate, pubescent; suprahumeral horns, long, slender, extending outward and upward and curving backward; posterior

process long, slender, elevated above tegmina; tegmina wrinkled, hyaline; sides of thorax tomentose."

Type Location—Australian Museum.

Type Locality—Broken Hill, New South Wales.

Xiphistes australasiae Distant

Xiphistes australasiae Distant, 1916, Ann.Mag.Nat.Hist. (8): 18: 21.

Xiphistes Stål is a genus which is confined to Africa. Distant, in describing the above species, which undoubtedly belongs to the genus *Xiphistes*, mentions that the single specimen available to him came from the Goddefroy collection and that for this reason, most probably came from Queensland. Even more probably it was not collected anywhere on the Australian continent.

Type Location—British Museum.

Ibiceps laminifer Buckton

Ibiceps laminifer Buckton, 1903, Monog.Membrac. 240.

This insect cannot readily be identified from the description and the type location is unknown. As Buckton records that the single specimen known to him bore 2 labels, one " Singapore " and the other " Australia ", it is very possibly not an Australian insect.

Cercopoidea

The salient distinguishing morphological features of this super-family have already been discussed (pp. 22-28) and it has been suggested that it became differentiated as early as Permian times. A diagnostic characteristic not previously mentioned, is the invariable presence of the frons on the crown of the head, and its usual separation, by the epistomal suture, from the ventrally situated post-clypeus.

While within the Cicadelloidea it is possible to recognise families, sub-families and tribes at different levels of evolutionary development, this apparently cannot be done within the Cercopoidea. Furthermore, although each of the 3 comprised families, all of which are represented in Australia, (though one only, the Aphrophoridae, is represented in New Zealand) has certain distinctive characteristics, they lack any significant differences of a fundamental nature. This suggests that the group, from an evolutionary point of view, is a more stable one than the Cicadelloidea. Such a supposition is supported by the fact that there are no recognized endemic groups of cercopoids in Australia with a status higher than that of a genus.

It is interesting to conjecture whether the present apparent comparative stability of the Cercopoidea might be due to a possibility that their period of active evolutionary diversification preceded in time the corresponding period for the Cicadelloidea and that, furthermore, it came to an end prior to the commencement of the Cretaceous (Evans, 1964).

Some cercopoids, like some cicadelloids, are able to produce sound by means of timbals and timbal muscles (Ossiannilsson, 1949). It is possible, also, that some were, at one time, able to stridulate, since apparent stridulating areas have been described from the forewings of one Triassic species (Evans, 1961).

The genera of Australian cercopoids have not been allocated in this work to particular sub-families or tribes. This is because the author lacks sufficient knowledge of the super-family as a whole on a world basis to enable appreciation of the significance of the factors on which these groupings have been established by other authors.

Key to the Families of Cercopoidea

1. Eyes longer than wide; hind margin of pronotum W-shaped.....2
   Eyes approximately as long as wide; hind margin of pronotum straight or slightly curved..... **Cercopidae**
2. Pronotum flat, sometimes anteriorly declivous; tegmen lacking, or, with a very small, appendix; vein M joined to Rs by a single cross-vein.... **Aphrophoridae**
   Pronotum convex; tegmen with a wide appendix continuing around the apex of the tegmen; vein M joined to Rs by at least 2 cross-veins; hind wing lacking Rs ..... **Machaerotidae**

The Family Cercopidae

This family, which is of world-wide distribution, is especially richly represented in tropical countries, particularly in the Oriental region. As well as having representatives which are black or brown in colour, some forms have a yellow, orange and red colour-pattern.

In the head, the post-clypeus is usually swollen, sometimes very considerably, and the crown, which is usually longer in the centre than against the eyes, is anteriorly rounded. The pronotum usually widens posteriorly and is sometimes very large. The tegmina may be entirely, or in part, rugose, and in part, or entirely, pubescent. They are usually apically rounded.

Key to the Genera of the Cercopidae represented in Australia

1. Insects less than 10 mm in length.....2
   Insects more than 10 mm in length..... **Megastethodon** Le P. & S.
2. (1) Insects with an orange and brown colour pattern.....3
   Insects predominantly brown and black in colour.....4
3. (2) Post-clypeus swollen; pronotum declivous; Rs arising from R in approximately the centre of the tegmen..... **Eoscarta** Breddin
   Post-clypeus not swollen; pronotum not markedly declivous; Rs short, arising from R nearer the apex than the centre of the tegmen..... **Aufidus** Stål
4. (2) Post-clypeus equal in width with each eye; crown steeply declivous; apical half of tegmen hyaline..... **Aufiterna** Kirkaldy
   Not as above 5
5. (4) Post-clypeus flattened in ♂, convex but not swollen, in ♀; ocelli permanent.... ..... **Petyllis** Kirkaldy
   Post-clypeus 3-sided in ♂; inflated in ♀; ocelli very small.. **Tonnoiria** Lallemand

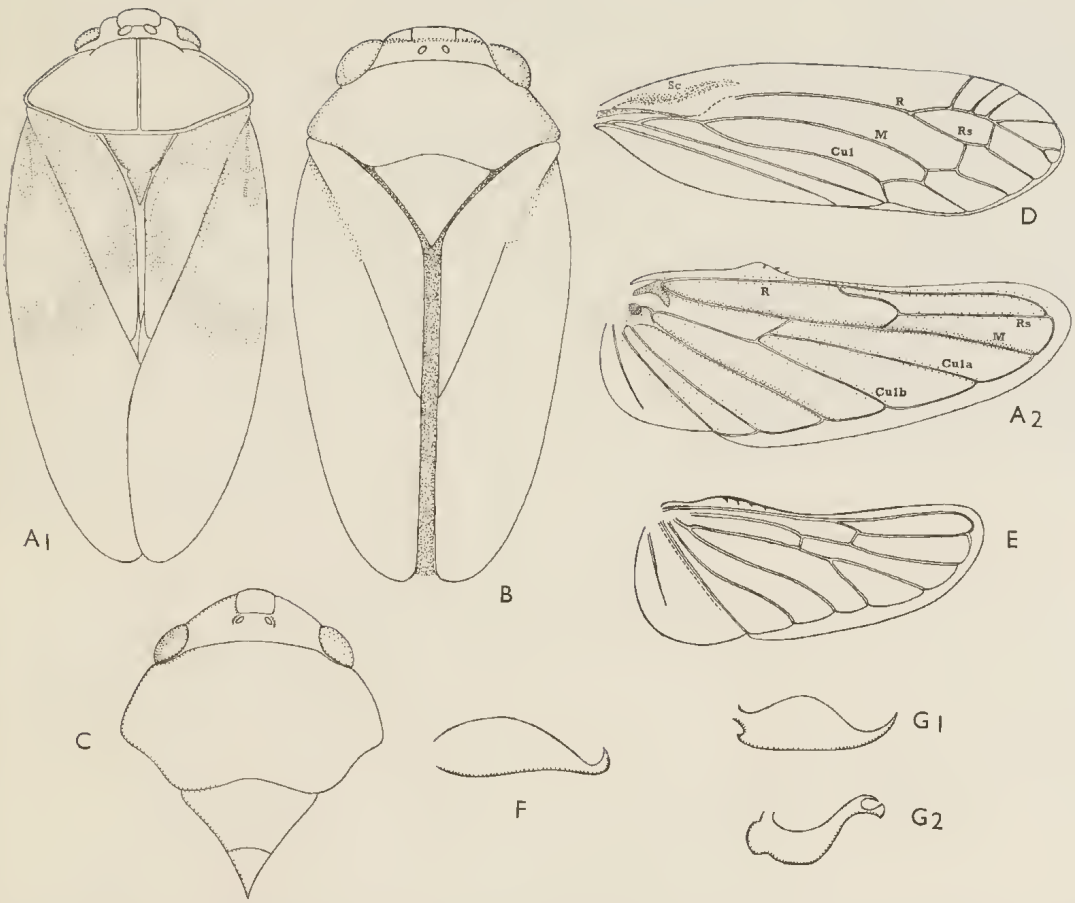


Fig. 46: A1, *Megastethodon urvillei;* A2, *M. urvillei*, wing; B, *Aufiterna ptyeloides;* C, *Petyllis deprivata*, head and thorax; D, *Aufidus trifasciatus*, tegmen; E, *Eoscarta carnifex*, wing; F, *Tonnoiria chinae*, subgenital plate; G1, *Tonnoiria tasmaniana*, subgenital plate; G2, *T. tasmaniana*, aedeagus.

Aufidus Stål

Aufidus Stål, 1863, Trans.Ent.Soc.London, (3) 1: 594.

Aufidellus Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 381.

Aufidus Stål, Distant, 1908, Ann.Soc.Eng.Belg. 52: 97.

Fragile, delicate insects. The labium terminates in line with the hind margin of the middle coxae. The hind margin of the face of the head is arched and the fronto-clypeus is swollen and slightly flattened medially and the eyes are widely separated from the fronto-clypeus. The scutellum is narrower than the crown of the head between the eyes. The tegmen are narrow and proximally membraneous, though distally coriaceous. The hind tibiae have a single spur.

Type species—*Aufidus trifasciatus* Stål (Mysol).

Aufidus trifasciatus Stål

(Figs 3, B; 46, D)

Aufidus trifasciatus Stål, 1863, Trans.Ent.Soc.Lond. 3: 594.

Aufidellus australensis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 381 (syn.nov.).

Length, ♂, ♀, 6·2-6·5 mm. General coloration orange with three of four broad transverse black bars. Face of head orange. Crown, anteriorly orange, black between the eyes. Pronotum anteriorly orange, posteriorly, and continuing narrowly onto tegmina, broadly black. Scutellum orange. Tegmen proximally orange, followed by a broad transverse opaque brown stripe; apically in part, or wholly, dark hyaline brown; between the 2 dark areas, broadly vitreous. Thorax and abdomen ventrally orange.

Type Location—British Museum.

Type Locality—Mysol.

Known distribution elsewhere—Magnetic Island, Dunk Island, Kuranda, Cooktown (Queensland).

Aufidus lucidus Jacobi

Aufidus lucidus Jacobi, 1928, Arkiv.Zool. 19 (28): 49.

Length, ♀, 7-8 mm. Head, pronotum and tegmina reddish, ochreous-yellow. Crown of head between the ocelli and veins, on the posterior two-thirds of the tegmen, black.

Type Location—Unknown.

Type Locality—Malanda, Queensland.

Aufiterna Kirkaldy

Aufiterna Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 382.

On the face of the head the fronto-clypeus is narrow and swollen, somewhat medially flattened, with the sides steep. The labium terminates between the middle coxae. The eyes, which are broader than long, lie considerably below the level of the fronto-clypeus. On the crown of the head, the distance between the ocelli is less than one-third of the distance between each ocellus and the adjacent eye. The eyes overlap the pronotum laterally. The tegmina have numerous costal veinlets and the hind tibiae have a single spur.

Type species—*Aufiterna ptyeloides* Kirkaldy (Queensland).

Aufiterna ptyeloides Kirkaldy

(Fig. 46, B)

Aufiterna ptyeloides Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 382.

Aufidus kirkaldyi Jacobi, 1921, Arch.Nat. 87 (12): 50 (nom.nov.).

Length, ♂, ♀, 4·6-5·2 mm. General coloration pale yellowish-brown, finely pubescent. Tegmen either entirely pale yellowish-brown, or proximally brown, sometimes shading to dark brown, and apically pale hyaline brownish-yellow.

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Jacobi (1921) regarded *Aufiterna* as a synonym of *Aufidus*, of which *Notoscarta* Breddin is a synonym, and as Breddin (1902) had described a *Notoscarta ptyeloides* a new name for this species became necessary. However, this change in nomenclature was unnecessary since *Aufiterna ptyeloides* Kirkaldy is not congeneric with the type of *Aufidus* Stål, (*A. trifasciatus*).

Eoscarta Breddin

Eoscarta Breddin, 1902, Soc.Ent.Zurich 17: 58.

Euryaulax Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 380.

The labium terminates at the posterior margins of the middle coxae. The fronto-clypeus is swollen, medially flattened and the flattened area is bordered by ridges. The eyes are widely separated from the fronto-clypeus and the hind margin of the face is transverse. On the crown of the head the distance between the ocelli is equal to half the distance between each ocellus and the adjacent eye. The scutellum is as wide as the crown between the eyes. The tegmina are broad and not steeply tectiform.

Type species—*Cosmocarta borealis* Distant (Oriental Region).

Eoscarta carnifex (Fabricius)

(Figs 5, C, G; 8, H; 46, E)

Cercopis carnifex Fabricius, 1775, Syst.Ent. 688.

Cercopis carnifex Fabricius, Stål, 1869, Hem.Fabr. 2: 11.

Triecphora inconstans Walker, 1851, List.Homopt.Brit.Mus. 3: 673.

Euryaulax callitettigoides Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 381.

Eoscarta carnifex (Fabricius), Distant, 1908, Ann.Soc.Ent.Belg. 52: 97.

Triecphora maculata Walker, 1851, List.Homopt.Brit.Mus. 3: 673.

Euryaulax artofasciata Lallemand, 1949, Inst.Roy.Soc.Nat.Belg. (2) 32: 79 (syn.nov.).

Length, ♂, ♀, 7·5-8 mm. A highly variable species, orange in colour with transverse dark brown, or, black markings. Head orange, or, brown. Pronotum anteriorly orange, posteriorly brown, or entirely orange, or entirely brown. Tegmen orange with 2 wide, or, narrow, transverse black, or dark brown, fasciae. Male genitalia as in Fig. 8, H.

Type Location—Unknown.

Type Locality—Unknown.

Known distribution—Brisbane, Cairns, Coen, Mareeba, Lawes (Queensland); Ord River, Forest River District (Western Australia).

Eoscarta vacuola Jacobi

Eoscarta vacuola Jacobi, 1928, Arkiv.Zool. 19 (28): 1.

Eoscarta vacuola Jacobi, Lallemand, 1949, Inst.Roy.Soc.Nat.Belg. (2) 32: 79.

Length, ♂, ♀, 6·5-8 mm. Testaceous, with the crown of the head and the pronotum somewhat darker in colour.

This species is unknown to me, Lallemand (1949) has stated that it does not belong to the genus *Eoscarta*.

Type Location—Unknown.

Type Locality—Cedar Creek, Queensland.

Known distribution elsewhere—Mt Tambourine (Queensland).

Petyllis Kirkaldy

Petyllis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 382.

On the face of the head, the labium terminates at the base of the middle coxae. The fronto-clypeus is flattened in the ♂ and convex in the ♀. The tegmina are narrowly tectiform with obscure venation and the hind tibiae have a single spur.

Type species—*Petyllis australiensis* Kirkaldy (Queensland).

Petyllis deprivata (Walker) (comb.nov.)

(Fig. 46, C)

Monecphora deprivata Walker, 1858, List.Homopt.Brit.Mus.Supplement, 179.

Petyllis australiensis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 382 (syn.nov.).

Haematoscarta flavifrons Schmidt, 1925, Soc.Ent. 40: 40.

Length, ♂, ♀, 6-8·6 mm. General coloration pale brown or reddish-brown with fine golden pubescence. Tegmen coriaceous, with an apparent transverse white fascia immediately behind the scutellum which is associated with a change in the colour of the pubescence, and not of the tegmen.

Type Location—British Museum.

Type Locality—Australia.

Known distribution elsewhere—Mittagong (New South Wales); Bonang, Timbertop (Victoria); Brisbane (Queensland).

Tonnoiria Lallemand

Tonnoiria Lallemand, 1954, Treubia 22: 501.

On the face of the head the labium extends as far as the base of the hind coxae. The post-clypeus in the ♀ is swollen with faint lateral striations and in the ♂ is narrowly convex, the anterior half smooth and equal in length to the ante-clypeus, the posterior half with deep lateral striations. The crown is entirely rounded with an apical depression anterior to the frons. The frons and dorsal surfaces of the antennal ledges are depressed below the level of the vertex. The ocelli are closely adjacent and a median longitudinal ridge is lacking. In the tegmina there is an inflated circular boss between R and M and M and Cu1 are fused for the length of 1 mm, but are basally separate. The venation is simple, not reticulate, and there are sometimes 4 or 5 oblique veinlets between R1 and the costal margin. The hind tibiae have a single spur.

Type species—*Tonnoiria tasmaniana* Lallemand.

Tonnoiria tasmaniana Lallemand

(Figs 8, G; 46, G1, G2)

Tonnoiria tasmaniana Lallemand, 1954, Treubia 22: 501.

Length, ♂, ♀, 4-7·1 mm. General coloration, brown, dark brown or black. Crown brown, or black, or frons black, and vertex brown. Pronotum black, brown, or entirely black, posteriorly brown. Scutellum always black. Tegmen with anterior and posterior areas of whitish pubescence and sometimes with a small, or large, whitish hyaline area against the costal margin. Male genitalia as in Figs 8, G, 46, G1, G2.

Type Location—British Museum.

Type Locality—Blundells, A.C.T.

Known distribution elsewhere—Adventure Bay, Lake St Clair, Cradle Valley, Snug (Tasmania); McPherson Ranges (Queensland); Mt Wilson, (New South Wales); Hotham Heights Healesville (Victoria).

It is possible that representatives of some populations from widely separated localities are sufficiently distinctive to merit specific differentiation.

Tonnoiria chinae (Hacker) (comb.nov.)

(Fig. 46, F)

Eoscarta chinae Hacker, 1926, Mem.Queensland Mus. 8: 244.

Length, ♂, 6, ♀, 7 mm. General coloration dark brown. Crown of head black the margin of the antennal ledges, sometimes brown. Pronotum dark brown, scutellum dark brown or black. Tegmen in part ochreous, in part dark brown, with a large whitish, or hyaline, pale yellowish-brown area, adjacent to the costal margin ante-apically. Male genitalia as in Fig. 46, F.

Type Location—Queensland Museum.

Type Locality—National Park, Queensland.

Megastethodon Schmidt

Megastethodon Schmidt, 1908, Stett.Ent.Zeit. 72: 68.

Large heavily built insects. The labium terminates between the hind coxae. On the crown of the head, the ocelli are slightly nearer to each other than to the eyes on each side. The anterior two-thirds of the pronotum are declivous and the lateral angles are rounded. In the tegmina, M and Cu 1 are proximally fused for a length of 3 mm, and the venation is apically reticulate.

Type species—*Cercopis rubrifer* Walker (New Guinea).

This is the first species of the group of large tropical cercopids, comprising such genera as *Cosmocarta* Stål, *Homatostethus* Schmidt and *Leptataspis* Schmidt, to be recorded from Australia. It is undoubtedly a New Guinea species which has become established in northern Australia.

Megastethodon urvillei Le Pelletier and Serville

(Figs 8, F; 46, A1, A2)

Megastethodon urvillei Le Pelletier and Serville, 1827, Encyc.Meth. 10: 605.

Length, ♂, 17·5, ♀, 19 mm. Head and thorax black. Tegmen proximally orange with an interrupted transverse black fascia, remainder black. Male genitalia as in Fig. 8, F.

Type Location—Unknown.

Type Locality—New Guinea.

Known distribution elsewhere—Claudie River, Cape York Peninsula (Queensland); Mysol, Aru Island.

The Family Aphrophoridae

Aphrophorids, which are of universal distribution, are brown, black, yellowish or greyish insects and sometimes have bold yellow markings. In the head, the post-clypeus is flat or convex, but seldom very considerably swollen. The crown is usually longest in the centre and may be narrowly produced. The pronotum is usually parallel-sided though sometimes it widens posteriorly. The tegmina, which are usually rugose and sometimes pubescent, are apically rounded or acute.

Key to the Genera of the Aphrophoridae represented in Australia

1. Insects 12 mm or more in length.....2
   Insects less than 12 mm in length.....3

2. (1) Hind tibia with 2 spurs; veins M and Cu 1 in the tegmen basally fused..... **Eoptyelus** Jacobi
   Hind tibia with 1 spur; veins M and Cu 1 in the tegmen separate for their entire lengths..... **Novaphrophora** Lallemand

3. (1) Small beetle-like insects with convex, elytra-like tegmina..... **Bathylus** Stål
   Not as above.....4

4. (3) Apex of head narrowly produced..... **Philagra** Stål
   Not as above.....5

5. (4) Hind tibia with only 1 spur; venation of tegmen apically reticulate.....6
   Hind tibia with 1 large and 1 small spur; venation of tegmen not apically reticulate.....7

6. (5) Post-clypeus in ♂, carinate..... **Anyllis** Kirkaldy
   Post-clypeus in ♂ not carinate..... **Neoaphrophora** China

7. (6) Venation of tegmen distinct; on the crown of the head, frons shorter than each eye..... **Clovia** Stål
   Venation of tegmen obscure; on the crown of the head, frons approximately the same length as each eye..... **Eurycercopis** Kirkaldy

Anyllis Kirkaldy

Anyllis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 386.

Aphrophorinella Lallemand, 1936, Bull.Ann.Soc.Ent.Belg. 82: 195 (syn.nov.).

On the face of the head the labium extends as far as the base of the hind coxae. The post-clypeus in the ♂ is broadly convex and swollen. The crown is angularly produced and apically rounded and the ocelli lie midway between the hind margin of the frons and the hind margin of the head. The tegmina have distinct venation which is apically reticulate. M and Cu1 are fused for a third of their lengths. The hind tibiae have a single spur.

Type species—*Anyllis leiala* Kirkaldy.

Anyllis leiala Kirkaldy

(Fig. 47, D, P)

Anyllis leiala Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 386.

Aphrophorinella tonnoiri Lallemand, 1946, Bull.Ann.Soc.Ent.Belg. 82: 195 (syn.nov.).

Length, ♂, 5·5-6 mm; ♀, 6·8-8 mm. Rugose. General coloration pale or dark brown with whitish markings. Post-clypeus brown. Pronotum and scutellum yellowish, or, reddish-brown; pronotum with numerous irregularly-shaped muscle impressions anteriorly. Tegmen yellowish, or, reddish-brown, usually with irregular whitish, or hyaline, areas. An anterior wedge-shaped transverse pale fascia is frequently present and sometimes a posterior fascia adjacent to the costal margin, together with pale areas in several cells. Male genitalia as in Fig. 47, P.

Type Location—H.S.P.A., Honolulu.

Type Locality—Kuranda, Queensland.

Known distribution elsewhere—Mt Wellington, Cradle Valley, Snug, Eagle Hawk Neck (Tasmania); Mt Victoria, Ebor, Mt Kosciusko (New South Wales); Mt Buller (Victoria); Black Mountain (A.C.T.).

Neoaphrophora China

Neoaphrophora China, 1952, Ann.Mag.Nat.Hist. (12) 5: 789.

Close to *Anyllis* Kirkaldy, differing principally in the shape of the post-clypeus in the ♂ of the type species which is convex and not longitudinally carinate.

Type species—*Neoaphrophora tiegsi* China.

Neoaphrophora tiegsi China

(Fig. 47, E)

Neoaphrophora tiegsi China, 1952, Ann.Mag.Nat.Hist. (12) 5: 791.

Length, ♂, 5·2, ♀, 6·8 mm. General coloration pale yellowish, or greyish-brown. Crown, pronotum and scutellum pale brown, muscle impressions on the anterior half of the pronotum prominent in the ♀. Tegmen brown, pale brown and white; an anterior,

whitish, irregular, transverse fascia, margined posteriorly with an irregular brown area, shading to white, followed by another brown area. Between this and the apex of the tegmen, which is brown, a hyaline area; veins brown.

Type Location—British Muscum.

Type Locality—Melbourne, Victoria.

Known distribution elsewhere—Wallan (Victoria); Mt Kosciusko (New South Wales).

Bathylus Stål

Bathylus Stål, 1866, Hem.Afr. 4: 68.

Small bcetle-like insects, oval in shape and brown in colour with pale markings. On the face of the head the labium extcnds beyond the middle coxae and the hind margin is approximately semi-circular in outline. The crown is triangular and the tegmina, which are elytra-like, are convex, and the venation is proximally obscure. The hind tibiae have 2 spurs.

Type species—*Lepyronia moerens* Stål.

Bathylus albicinctus (Erichson)

(Fig. 47, F)

Aphrophora albicincta Erichson, 1842, Archiv.Naturgesch. 8: 285.

Lepyronia convexa Walker, 1851, List.Homopt.Brit.Mus. 3: 726 (syn.nov.).

Lepyronia moerens Stål, 1854, Öfvers.Vetensk.Akad.Förh.Stockh. 11: 251 (syn.nov.).

Lepyronia albigutta Walker, 1858, List.Homopt.Brit.Mus.Supplement, 191 (syn.nov.).

Lepyronia albigutta Walkcr, Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 387.

Length, ♂, 5·3, ♀, 6·8 mm. Crown of head brown. Pronotum in ♀ entirely brown; in ♂, antcriorly coffee-brown, shading to dark brown, posteriorly white. Scutcllum brown. Tegmen, in ♀, coffce-brown, with a curved anterior pale fascia which extends from closc to the claval suture as far as the costal margin and then borders the costal margin; some of the cells posteriorly may be, in part, whitish; tegmen in ♂ dark brown; the anterior fascia cxtends onto the clavus and a fcw, or several, ante-apical cells may be, in part, white.

Type Location—Unknown.

Type Locality—Van Dieman's Land.

Known distribution elsewhere—Widely distributed in every State.

Clovia Stål

Clovia Stål, 1866, Hemipt.Afric. 4: 68.

On the face of the head the labium extends beyond the middle coxac and the clypeus is convex. The crown is triangularly produccd and apically rounded and the frons semi-circular in outline. The tegmina are coriaceous and apically narrow and the venation is moderately distinct. The hind tibiae have one large and one small spur.

Type species—*Clovia bigoti* Stål (Africa).

Clovia loxasema Hacker

(Fig. 4, G)

Clovia loxasema Hacker, 1926, Mem.Qucensland Mus. 8: 243.

Length, ♂, 7, ♀, 9-9·5 mm. Face of head centrally brownish-yellow, muscle impressions, laterally brown. Crown and pronotum brownish-yellow each with 3 transverse brown bands. Tegmen yellowish-brown with 2 oblique, narrow, pinkish fasciae, in part, or completely margined with dark brown areas; veins, in part, pinkish.

(In the original description the length of the ♀ is given as 13 mm, but specimens of this length are unknown to me.)

Type Location—Queensland Museum.

Type Locality—Toolom, New South Wales.

Known distribution elsewhere—Mt Tambourinc (Queensland).

Clovia regalis Lallemand

Clovia regalis Lallemand, 1927, Trans.Ent.Soc.Lond. 1927: 103.

Length, 5·5 mm. A rugose, somewhat hairy insect with dull coloration. Crown brownish yellow with a transverse brown band between the eyes. Pronotum anteriorly brown, posteriorly yellowish-brown; brown area with a narrow yellow transverse marking; scutellum sordid yellow. Tegmen dull brown, yellowish basally, with numerous small raised brown spots.

Type Location—British Museum.

Type Locality—Kuranda, Queensland.

Eoptyelus Jacobi

Eoptyelus Jacobi, 1921, Arch.Nat. 87 (12): 8.

The face of the head is wider than long, the fronto-clypeus convex, but not swollen, and the labium does not extend as far as the middle coxae. On the crown of the head, the distance between the ocelli is greater than between each ocellus and the adjacent eye. The tegmina are long and narrow and the venation is distinct. The hind tibiae have 2 spurs.

Type species—*Eoptyelus sordidus* Jacobi (New Guinea).

Eoptyelus australis Jacobi

(Figs 5, H; 6, E, F; 47, A, O)

Eoptyelus australis Jacobi, 1921, Arch.Nat. 87 (12): 9.

Ptyelus homochrous Hacker, 1926, Mem.Queensland Mus. 8: 244.

Length, ♂, ♀, 12-17 mm. Overall coloration brown with a yellowish pubescence. Male genitalia as in Fig. 47, O.

Type Location—Unknown.

Type Locality—New South Wales.

Known distribution elsewhere—Brisbane, Dunwich, Bunya Mountain (Queensland).

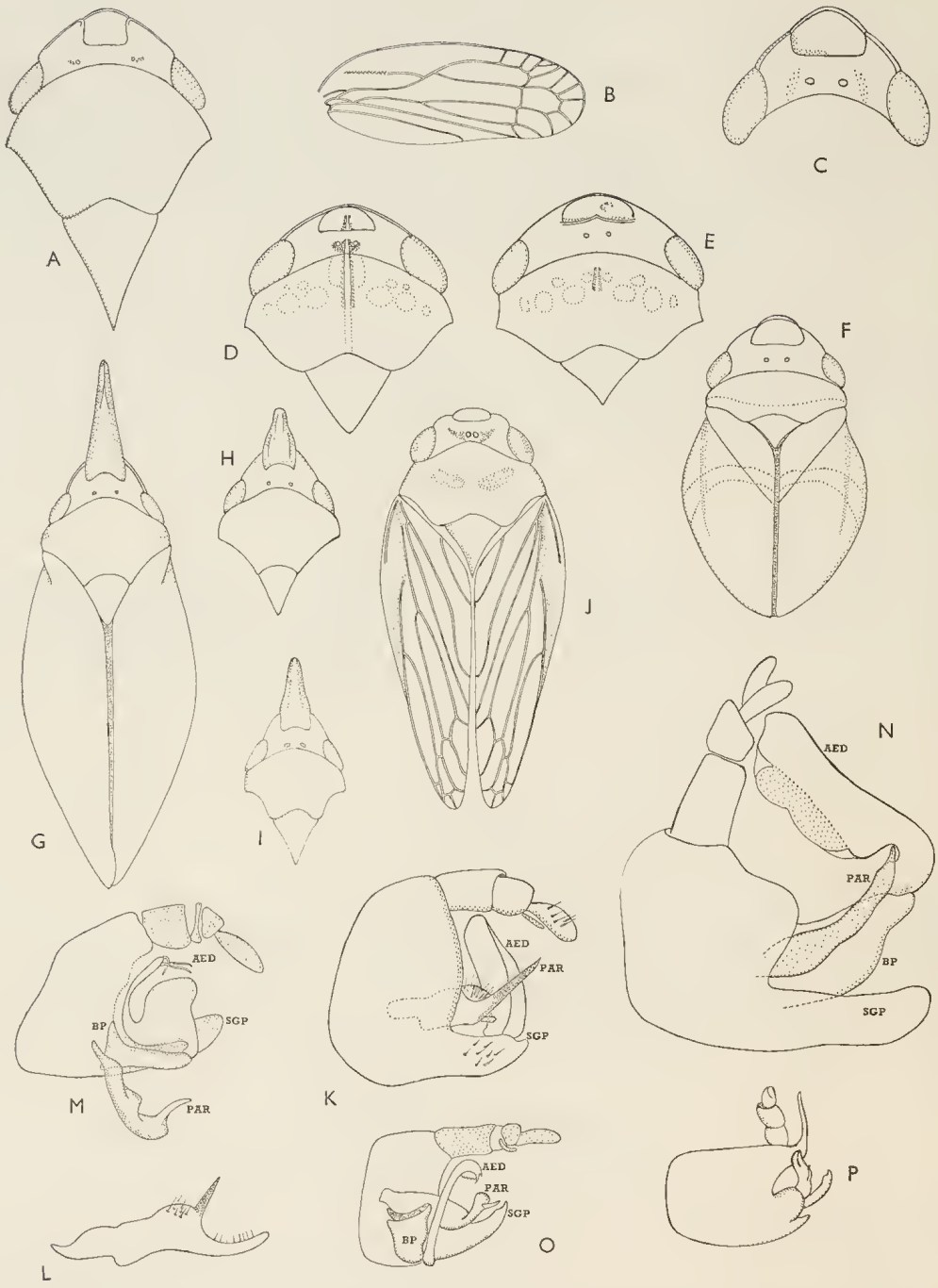


Fig. 47: A, *Eoptyelus australis*, head and thorax; B, *Neoaphrophora tiegsi*, tegmen; C, *Carystoterpa fingens*, head, dorsal aspect; D, *Anyllis leiala*, head and thorax; E, *Neoaphrophora tiegsi*, head and thorax; F, *Bathylus albicinctus;* G, *Philgra parva;* H, *Philagra fulvida*, head and thorax; I, *Philagra concolor*, head and thorax; J, *Pseudaphronella jactator;* K, *Carystoterpa fasciata*, male genitalia; L, *Carystoterpa pallida*, paramere; M, *Philagra concolor*, male genitalia; N, *Carystoterpa fingens*, male genitalia; O, *Eoptyelus australis*, male genitalia; P, *Anyllis leiala*, male genitalia. AED, aedeagus; BP, basal plate; PAR, paramere; SGP, subgenital plate.

Eurycercopis Kirkaldy

Eurycercopis Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 383.

On the face of the head the labium terminates between the middle coxae and the post-clypeus is convex. The crown is longer than wide, the frons extending anteriorly beyond the sides of the vertex. The ocelli, which are small and inconspicuous, are widely separated from each other. The pronotum is narrow laterally. The tegmina are coriaceous and the venation obscure. The hind tibiae have 1 large and 1 small spur.

Type species—*Eurycercopis nigrofasciata* Kirkaldy.

Eurycercopis nigrofasciata Kirkaldy

Eurycercopis nigrofasciata Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 383.

Length, ♂, 7, ♀, 8·5 mm. General coloration brown with yellowish pubescence. Crown brown, or, blackish-brown. Pronotum and scutellum brown with numerous black spots. Tegmen blackish-brown with an anterior, irregular, transverse, narrow, yellow fascia and an irregular pale posterior fascia; whole tegmen with numerous black spots.

Type Location—H.S.P.A., Honolulu.

Type Locality—Nelson, Queensland.

Known distribution elsewhere—Atherton Tableland (Queensland).

Novaphrophora Lallemand

Novaphrophora Lallemand, 1940, Bull.Ann.Soc.Ent.Belg. 80: 150.

The labium terminates between the fore femora. The crown of the head is almost twice as wide as long and the ocelli, which are large, are nearer to the eyes on each side than to each other. The pronotum is approximately a third wider than long and has 5 small depressions near the anterior margin. The tegmina are narrow apically and M and Cu 1 are distinct for the whole of their lengths and connected by a basal oblique cross-vein. The hind tibiae have a single spur.

Type species—*Novaphrophora tasmaniae* Lallemand.

Novaphrophora tasmaniae Lallemand

Novaphrophora tasmaniae Lallemand, 1940, Bull.Ann.Soc.Ent.Belg. 80: 151.

Length, ♀, 17 mm. General coloration brick-red with brownish-black markings.

Type Location—British Museum.

Type Locality—Cradle Valley, Tasmania.

This insect is not only considerably larger than any other recorded Australian aphrophorid, excepting *Eoptyelus australis*, but also quite unlike them. Unless, and until, further material is forthcoming, there must be uncertainty as to the correctness of the recorded locality.

Philagra Stål

Chalepus Walker, 1851, List.Homopt.Brit.Mus. 3: 731 (preoccupied).

Philagra Stål, 1862, Trans.Ent.Soc.Lond. (3) 1: 593 (nom.nov.).

Readily recognised by the narrowly produced and usually apically upturned head. The tegmina are coriaceous with raised spots and distinct venation and the hind tibiae have 2 spurs.

Type species—*Philagra hastata* (Walker) (India).

Philagra parva (Donovan)

(Figs 4, F; 47, G)

Fulgora parva Donovan, 1805, Ins.New Holland, Hem.Pl. 1, Fig. 2.

Chalepus teliferus Walker, 1851, List.Homopt.Brit.Mus. 3: 731.

Chalepus pugionatus Stål, 1854, Öfvers.Vetensk.Akad.Förh.Stockh. 12: 251.

Philagra parva (Donovan) Stål, 1866, Berlin Ent.Zeit. 10: 386.

Philagra parva (Donovan) Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 384.

Length, ♂, ♀, 9-12 mm. General coloration reddish-brown with mottled tegmina. The anterior prolongation of the head is greater in length than the pronotum and scutellum combined.

Type Location—Unknown.

Type Locality—New Holland.

Known distribution—Widely distributed in all States.

Collected on—*Casuarina* and *Acacia*.

Philagra fulvida Hacker

(Fig. 47, H)

Philagra fulvida Hacker, 1926, Mem.Queensland Mus. 8: 245.

Length, ♂, ♀, 8-11 mm. General coloration yellowish-brown, the tegmen with a central pale fascia, which may be interrupted by a darker area. Crown of head triangular, shorter than the combined length of the pronotum and scutellum.

Type Location—Queensland Museum.

Type Locality—National Park, Queensland.

Known distribution elsewhere—Springbank (Queensland).

Philagra concolor Hacker

(Fig. 47, I, M)

Philagra concolor Hacker, 1926, Mem.Queensland Mus. 8: 246.

Length, ♂, ♀, 9-10·5 mm. Evenly yellowish-brown in colour, the tegmina unpatterned. Crown of head approximately equal in width to the pronotum and scutellum combined.

Type Location—Queensland Museum.

Type Locality—Tooloom, New South Wales.

Known distribution elsewhere—Mt Tambourine, Southport, Brisbane (Queensland).

Philagra recurva Jacobi

Philagra recurva Jacobi, 1928, Arkiv.Zool. 19 (28): 47.

Length, ♂, ♀, 9-10 mm. General coloration olive brown, apex of head curving dorsally. Tegmen, concolorous with the thorax, with numerous scattered small brown spots.

Type Location—Unknown.

Type Locality—Malanda, Lamington Plateau.

Known distribution elsewhere—Binna Burra (Queensland).

Carystoterpa Lallemand

Carystoterpa Lallemand, 1936, Festschrift von Embrik Strand, Riga 1: 264.

On the face of the head the labium extends as far as the apices of the middle coxae and the post-clypeus is convex. The crown is triangularly produced and apically rounded. The ocelli are widely separated but nearer to each other than to the adjacent eyes. The tegmina are shining and finely punctate and M and Cu1 may be separate, or basally fused. The hind tibiae have one large and one small spur.

Type species—*Aphrophora trimaculata* Butler.

Carystoterpa fingens (Walker)

(Fig. 47, C, N)

Ptyelus fingens Walker, 1851, List.Homopt.Brit.Mus. 3: 718.

Aphrophora trimaculata Butler, White, 1874, Zool.Voy.Erebus & Terror 2: Ins.p. 26 (syn.nov.).

Aphrophora subvirescens Butler, White, 1874, Zool.Voy.Erebus & Terror 2: Ins.p. 26 (syn.nov.).

Length, ♂, 6-7 mm; ♀, 7-9 mm. General coloration brown with whitish markings, uniformly pale green, or pale green with a longitudinal brown streak on the tegmen. Male genitalia as in Fig. 47, C, N.

Type Location—British Museum.

Type Locality—Colenso, New Zealand.

Collected on—Coprosma robusta, Muehlenbeckia australis, Myoporum laium.

This is the most abundant of the 2 species of cercopoids occurring in New Zealand. Formerly 3 specific names have been attributed to it as follows: *trimaculata* (brown insects with 3 white markings on the tegmen); *subvirescens* (uniformly pale green insects); *fingens* (pale green insects with a longitudinal brown stripe on the tegmina). In addition, 3 subspecies of *trimaculata* have been recorded from the Chatham Isles (Lallemand, 1937), and forms with different arrangements of colour pattern are known also from the Three Kings Islands.

Examination of the male genitalia of insects with all these several colour pattern arrangements has disclosed no significant differences and for this reason they seem best considered as representing a single space.

Carystoterpa fasciata sp.nov.

(Fig. 47, K)

Length, ♂, 6, ♀, 7-8 mm. General coloration brown, brown with pale markings, or green, with a brown, longitudinal streak on the tegmen. Very similar in general

appearance to *C. fingens*, differing in having completely brown forms, in addition to those with three, or more, pale markings on the tegmen, and in characteristics furnished by the male genitalia. Male genitalia as in Fig. 47, K.

Holotype ♂ from Erskine Valley, Lord Howe Island (coll. A. Musgrave, 12/21), *Allotype* ♀, Mt Lidgbird, Lord Howe Island (coll. A. Musgrave, 12/21), both in the Australian Museum.

Carystoterpa pallida sp.nov.

(Fig. 47, L)

Length, ♂, 6-7 mm; ♀, 8 mm. General coloration uniformly pale green (pale yellowish in dried specimens), or, green with irregular obscure brownish markings. Differs from *C. fasciata* in characters furnished by the male genitalia, particularly in having forked instead of simple parameres. Male genitalia as in Fig. 47, L.

Holotype ♂ and *Allotype* ♀ from Lord Howe Island (coll. A. Musgrave, 12/21), in the collection of the Australian Museum.

The discovery in the collections of the Australian Museum of representatives of uniformly green and parti-coloured cercopids belonging to the New Zealand genus *Carystoterpa* suggested at first that representatives of 3 species of New Zealand cercopids had become established in Lord Howe Island. When examination of the male genitalia of New Zealand forms disclosed that only a single, highly variable, species occurred in New Zealand, it was expected that either the same species was represented also on the island, or else, that isolation had been sufficiently long to permit specific differentiation to take place, and that the island species had a similar range of colour pattern differences as the New Zealand one. It was with considerable surprise therefore that it was found that the Lord Howe Island cercopoids represent 2 distinctive species.

Pseudaphronella gen.nov.

The face of the head is almost as long as wide and the labium extends beyond the apices of the hind coxae. The post-clypeus, in the ♀, is convex. On the crown of the head the ocelli lie midway between the hind margin of the frons and the hind margin of the head. The sides of the pronotum are outwardly directed. The tegmina are coriaceous and the venation which is distinct, is apically reticulate. The hind tibiae have a single spur.

Type species—*Aphrophora jactator* F.B. White.

Pseudaphronella resembles *Anyllis* in coloration and general appearance, but differs in size being considerably larger and in the length of the labium. A superficial comparison suggests that it may be closely related to *Pseudaphrophora* Schmidt (1924), type species, *P. chilensis* Schmidt.

Pseudaphronella jactator (F.B. White)

(Fig. 47, J)

Aphrophora jactator, F.B. White, 1879, Ent.Mon.Mag. 15: 214.

Length, ♀, 11·5 mm. General coloration pale brownish-yellow, with paler areas on the tegmina. Head and thorax pale brownish-yellow. Tegmen pale brownish-yellow with 2 large whitish areas adjacent to the costal margin.

Type Location—British Museum.

Type Locality—New Zealand.

Known distribution in New Zealand—Te Aroha Mt.

The Family Machaerotidae

These very distinctive insects have a restricted distribution and occur only in the Oriental region, where they are almost abundantly represented, tropical Africa and Australia. In colour they are black, or brown, and may have green, red and orange markings.

In the head the post-clypeus is flat or convex and may be inflated. The crown of the head is usually of the same length as the eyes and the frons is reduced. The pronotum is large, and in some forms the scutellum is produced posteriorly into a raised spine-like process. The tegmina are shining and may be coriaceous but are never rugose. They are apically broad and the venation is highly specialised.

The nymphs inhabit calcareous tubes, situated on their food plants and live in these immersed in their liquid excretions (Evans, 1940).

For information on the broad classification of this family and the distribution of its components, reference should be made to the work of Maa (1961, 1963).

Key to the Genera of Machaerotidae represented in Australia

1. Scutellum of normal proportions 2
   Scutellum produced posteriorly into a spine-like process.. **Machaerota** Burmeister
2. (1) Tegmina with a considerable apical overlap..... **Hindoloides** Distant
   Tegmina not as above..... 3
3. (2) Tegmen irregular with raised spots, not markedly shiny; anal veins forming a Y-vein..... **Polychaetophyes** Kirkaldy
   If surface of tegmen irregular, then shiny; lacking raised spots; anal veins not forming a Y-vein 4
4. (3) Pronotum coarsely rugose, not shiny; tegmen not with a crumpled appearance ..... **Pectinariophyes** Kirkaldy
   Pronotum not coarsely rugose, shiny, as is also the tegmen, which has a crumpled appearance..... **Chaetophyes** Schmidt

Pectinariophyes Kirkaldy

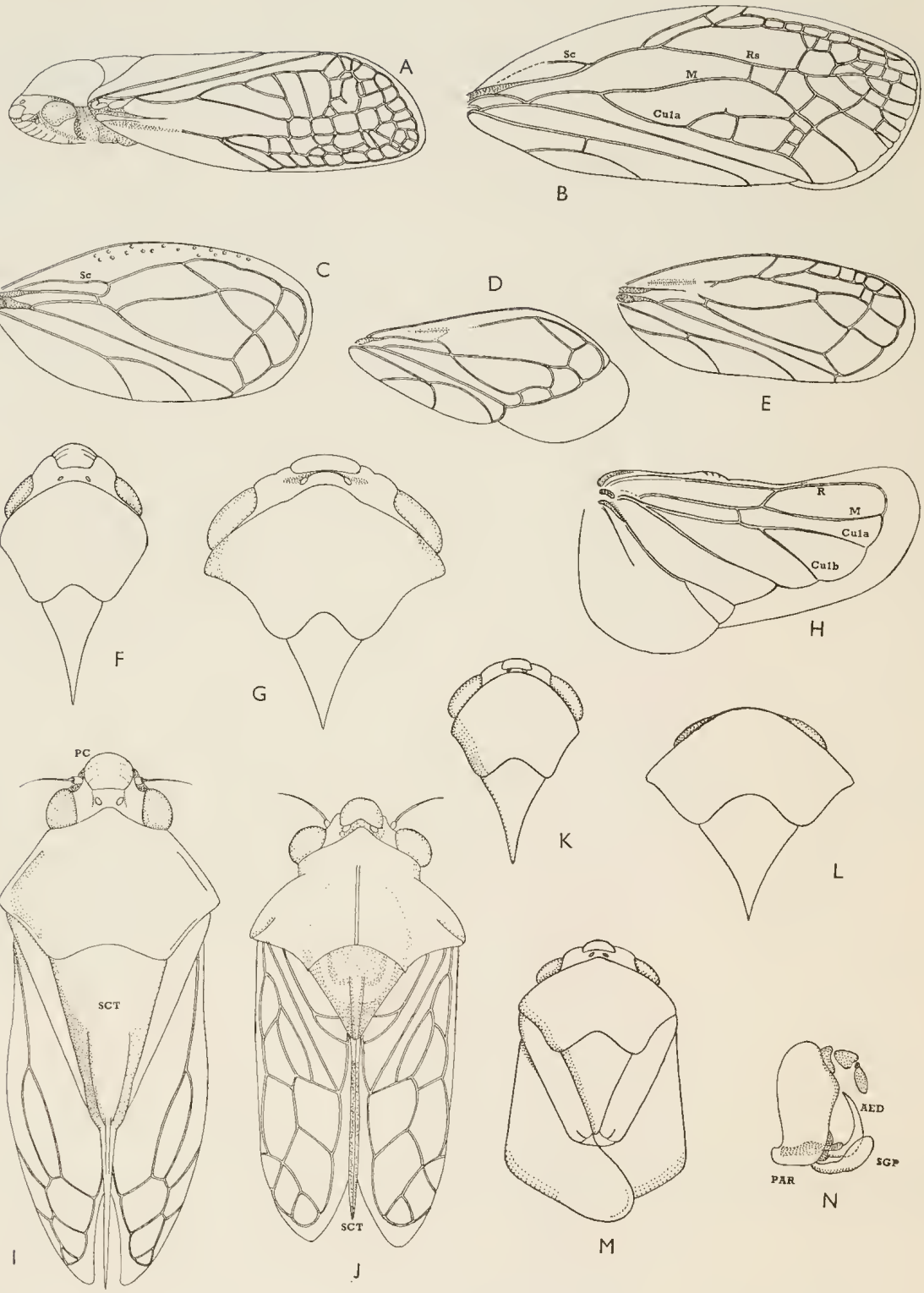
Pectinariophyes Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 386.

Pectinariophyes Kirkaldy, Maa, 1963, Pacific Ins.Monog. 5: 43.

The crown of the head is declivous and of even length, or slightly longer in the centre. The pronotum is coarsely rugose and not shiny. The tegmina, which are not very crumpled in appearance, usually have numerous cross veins and the venation may be reticulate. The anal veins may be linked by cross veins, but a Y-vein is not formed. The hind tibiae have a single spur.

The abdomens of the nymphs taper apically and are not swollen and operculate.

Type species—*Pectinariophyes pectinaria* Kirkaldy.


A
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PAR
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Pectinariophyes stalii (Spanberg)

(Fig. 4, H; 48, B, N)

Carystus stalii Spanberg, 1878, Öfvers.Vetensk.Akad.Förh.Stockh. 34: 12.

Carystus sororculus Spanberg, 1878, Öfvers.Vetensk.Akad.Förh.Stockh. 34: 12.

Polychaetophyes aequalior Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 385.

Pectinariophyes pectinaria Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 386.

Pectinariophyes stalii (Spanberg), Maa, 1963, Pacific Ins.Monog. 5: 47.

Length, ♂, 4·5-5 mm; ♀, 5-7 mm. Head and thorax yellow, greenish-yellow or yellowish-brown. Tegmen pale brown or particoloured with a variable pattern of hyaline-brown alternating with vitreous areas, or proximally yellow, or brown, and distally entirely hyaline-brown, or entirely vitreous. Venation sometimes reticulate. Male genitalia as in Fig. 48, N.

Type Location—Natural History Museum, Stockholm.

Type Locality—Austral. boreal.

Known distribution elsewhere—Rockhampton, Brisbane (Queensland); Canberra (A.C.T.); Adelaide (South Australia); Kimberley (Western Australia); Mullaley (New South Wales).

Pectinariophyes reticulata (Spanberg)

(Fig. 48, A)

Carystus reticulatus Spanberg, 1876, Öfvers.Vetensk.Akad.Förh.Stockh. 34: 12.

Pectinariophyes reticulata (Spanberg), Maa, 1963, Pacific Ins.Monog. 5: 45.

Length, ♂, 7, ♀, 7-10 mm. General coloration pale brown, pale yellowish brown or brown.

Type Location—Natural History Museum, Stockholm.

Type Locality—Austral. boreal.

Known distribution elsewhere—Cunnamulla, Sydney (New South Wales).

OPPOSITE

Fig. 48: A, *Pectinariophyes reticulata;* B, *Pectinariophyes stalii*, tegmen; C, *Polychaetophyes serpulida*, tegmen; D, *Hindololides appendiculata*, tegmen; E, *Chaetophyes vicina*, tegmen; F, *C. vicina*, head and thorax; G, *Chaetophyes admittens*, head and thorax; H, *Pectinariophyes stalii*, wing; I, *Machaerota pugionata*; J, *Machaerota finitima*; K, *Chaetophyes compacta*, head and thorax; L, *Polychaetophyes serpulida*, head and thorax; M, *Hindoloides appendiculata*; N, *Pectinariophyes stalii*, male genitalia. AED, aedeagus; PAR, paramere; SGP, subgenital plate.

Chaetophyes Schmidt

Chaetophyes Schmidt, 1918, Stett, Ent.Zeit. 79: 367.

The crown of the head is longest in the centre. The pronotum and scutellum are not rugose, but have a shiny appearance. The tegmina are also shiny and have a very crumpled appearance. The anal veins, though sometimes confluent, do not form a Y-vein. The hind tibiae have a single spur. The abdomens of the nymphs are apically swollen and the fifth and sixth abdominal tergites are modified to form opercula.

Type species—*Chaetophyes bicolor* Schmidt.

Chaetophyes compacta (Walker)

(Figs 4, E; 48, K)

Aphrophora compacta Walker, 1851, List.Homopt.Brit.Mus. 3: 701.

Aphrophora bifrons Walker, 1851, List.Homopt.Brit.Mus. 3: 702.

Aphrophora semiflava Walker, 1851, List.Homopt.Brit.Mus. 3: 701.

Aphrophora australiae Walker, 1851, List.Homopt.Brit.Mus. 3: 727.

Aphrophora areolata Walker, 1858, List.Homopt.Brit.Mus.Supplement 345.

Chaetophyes bicolor Schmidt, 1918, Stett.Ent.Zeit. 79: 368.

Chaetophyes unicolor Schmidt, 1918, Stett.Ent.Zeit. 79: 369.

Polychaetophyes perkinsi Hacker, 1926, Mem.Queensland Mus. 8: 243.

Length, ♂, 5, ♀, 7 mm. Broad insects. ♂ entirely black; ♀, face of head in part brown or, entirely black; crown of head, pronotum and scutellum greenish-yellow. Tegmen uniformly hyaline brown or black.

Type Location—British Museum.

Type Locality—Tasmania.

Known distribution elsewhere—Apollo Bay, Springvale (Victoria); Berrima, Tubrabucca (New South Wales); Brisbane (Queensland).

Chaetophyes admittens (Walker)

(Fig. 48, G)

Aphrophora admittens Walker, 1858, List.Homopt.Brit.Mus.Supplement, 345.

Chaetophyes admittens (Walker), Maa, 1963, Pacific Ins.Monog. 5: 59.

Length, ♂, 5·5-6 mm; ♀, 6·7-8·2 mm. Head brown with black muscle impressions. Crown of head and thorax dark chestnut brown. Tegmen, ♂, very dark brown with extensive irregular white markings; ♀, hyaline brown, with one or two irregular pale markings.

Type Location—British Museum.

Type Locality—Australia.

Known distribution elsewhere—Hornsby, Nyngan (New South Wales).

Chaetophyes vicina (Lallemand)

(Fig. 48, E, F)

Chaetophyes vicina Lallemand, 1927, Trans.Ent.Soc.Lond. 1927: 99.

Length, ♂, 4-4·8 mm; ♀, 6-7 mm. Slender insects. Crown of head, in ♀, angulate, longest in the centre; in ♂, of equal length with the eyes. Head, including the face, and thorax, greenish-yellow. Tegmen basally, narrowly greenish-yellow; remainder hyaline-brown with a broad central colourless area in the ♀; apical cells in part colourless in tegmina of both sexes.

Type Location—British Museum.

Type Locality—Moree, New South Wales.

Known distribution elsewhere—Pentland, Cairns (Queensland).

Polychaetophyes Kirkaldy

Polychaetophyes Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 385.

Polychaetophyes Kirkaldy, Maa, 1963, Pacific Ins.Monog. 5: 36.

On the face of the head the labium extends to the base of the hind coxae and the fronto-clypeus is convex. The crown of the head is declivous and longer in the centre than against the eyes. The pronotum is anteriorly declivous. The tegmina proximally and the whole of the clavus, are punctate, and the surface is irregular and not flat. The anal veins form a Y-vein. The hind tibiae have 2 spurs. The abdomens of the nymphs are apically swollen and the fifth and sixth abdominal segments are modified to form opercula.

Type species—*Polychaetophyes serpulidia* Kirkaldy.

Polychaetophyes serpulidia Kirkaldy

(Fig. 48, C)

Polychaetophyes serpulidia Kirkaldy, 1906, Bull.Hawaii Sug.Ass.Exp.Sta. 1 (9): 385.

Length, ♀, 8 mm. Head and thorax yellowish or reddish-brown. Tegmen yellowish, or, reddish hyaline-brown with a broad white proximal transverse fascia, which extends narrowly alongside the costal margin of the tegmen and numerous raised brown spots, especially in the neighbourhood of the costal margin.

Type Location—H.S.P.A., Honolulu.

Type Locality—Bundaberg, Queensland.

Known distribution elsewhere—Biloela, Dimbulah (Queensland); South Australia.

Hindoloides Distant

Hindoloides Distant, 1915, Ann.Mag.Nat.Hist. (8) 15: 506.

Soa Jacobi, 1928, Arkiv.Zool. 19 (28): 46 (preoccupied).

Soamachaerota Metcalf, 1952, J.Wash.Acad.Sci. 42: 228 (syn.nov.).

The crown of the head, which is declivous, is longest in the centre. The tegmin overlap very considerably distally of the apex of the clavus and their overfold is vertical i position. The appendices are very wide and approximately vertical in shape. The ana veins form a Y-vein. The hind tibiae have 2 spurs.

Type species—*Hindoloides indicans* Distant (India).

Hindoloides appendiculata (Hacker)

(Fig. 48, D, M)

Polychaetophyes appendiculata Hacker, 1926, Mem.Queensland Mus. 8: 247.

Soa tmetoptera Jacobi, 1928, Arkiv.Zool. 19 (28): 47.

Length, ♀, 5 mm. Head and thorax chestnut brown. Tegmen, pale hyaline brown veins, proximally thickened, distally obscure.

Type Location—Queensland Museum.

Type Locality—Bunya Mountains, Queensland.

Known distribution elsewhere—Mt Tambourine (Queensland).

Machaerota Burmeister

Machaerota Burmeister, 1835, Handb.Ent. 2 (1): 128.

The pronotum has a median longitudinal ridge and the hind margin is approximatel twice the width of the anterior margin. The scutellum, which is raised above the level o the pronotum, is anteriorly broad and deep and posteriorly spine-like. The central portio is dorsally channel-shaped and the narrow extension extends as far as the apices of the folde tegmina. The tegmina have a wide appendix and reduced venation which form severa large cells. The claval veins form a Y-vein.

Type species—*Machaerota ensifera* Burmeister (Manila, Philippines).

Machaerota finitima Jacobi

(Fig. 48, J)

Machaerota finitima Jacobi, 1928, Arkiv.Zool. 19 (28): 45.

Length, ♂, 6, ♀, 7-8 mm. Head and pronotum black, scutellum black with a broad, curved, white, lateral band on each side, anteriorly; base of spine-like extension brown. Tegmen vitreous; veins brown.

Type Location—Natural History Museum, Stockholm.

Type Locality—Bellenden Kerr, Queensland.

Known distribution elsewhere—New Guinea.

Machaerota pugionata Stål

(Fig. 48, I)

Machaerota pugionata Stål, 1865, Öfvers.Vetensk.Akad.Förh.Stockh. 22: 154.

Pachymachaerota signoreti Schmidt, 1907, Stettin.Ent.Zeit. 68: 199 (nom.nov.).

Machaerota pugionata Stål, Maa, 1963, Pacific Ins.Monog. 5: 107.

Length, ♂, 5 mm. Head and thorax with a variable combination of an orange and black colour pattern. Tegmen vitreous, veins brown, raised in relief.

Type Location—Natural History Museum, Stockholm.

Type Locality—Austral. boreal.

Known distribution elsewhere—Kuranda (Queensland); Darwin (Northern Territory).

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During the several years the preparation of this work has been in progress a great many collections have been made available to me for study. The majority of these has been lent by institutions but some have been received from those who made them especially on my behalf. Thanks are expressed to all who have assisted me in this way and in particular to Dr R. A. O'Brien who has travelled many thousands of miles for leafhopper-collecting purposes and to Dr T. Woodward, who has permitted me to study his extensive collection of Australian and New Zealand leafhoppers and froghoppers; also to Mrs Crowe (Berrima); Mr M. Wallace (Perth); Dr F. H. Uther-Baker (Perth); Dr E. Reye (Darwin); Mr D. Lee (Sydney); Mr David Piggott (Balnarring) and Mr M. Nikitin (Sydney).

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In conclusion, gratitude is expressed to my wife, not only for transforming very numerous pencil sketches into finished drawings suitable for reproduction, but also for her help on collecting expeditions and in other ways and for her encouragement.

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Cicadelloidea and Cercopoidea recorded from New Zealand

Cicadelloidea

Cicadellidae

Ulopinae

Ulopini

Novolopa townsendi

Cephalelini

Paracephaleus hudsoni
Paracephaleus leptocarpi

Myerslopiini

Myerslopia magna
Myerslopia parva

Ledrinae

Novothymbris zealandica
Novothymbris cassiniae
Novothymbris dunensis
Novothymbris hinemoa
Novothymbris hudsoncia
Novothymbris tararuia
Novothymbris maorica

Hecalinae

Paradorydiini

Paradorydium westwoodi
Paradorydium philpotti
Paradorydium stewartensis
Paradorydium insularis
Paradorydium gourlayi

Aphrodinae

Euacanthellini

Euacanthella brunnea

Macropsinae

Macropsis nothofagi

Idiocerinae

Idiocerus distinguendus

Jassinae

Jassini

Batrachomorphus adventitiosus

Xestocephalinae

Xestocephalus ovalis

Deltocephalinae

Deltocephalini

Limotettix incerta
Scaphetus brunneus
Deltocephalus taedius
Athysanus negatus
Alodeltocephalus longuinquus

Typhlocybinae

Empoasca betulicola
Dikraneura maorica
Typhlocyba froggatti
Typhlocyba lethierryi
Ribautiana tenerrima
Zygina ansonae
Zygina zealandica
Zygina kiekie
Zygina cythea
Zygina dumbletoni
Zygina toetoe

Cercopoidea

Aphrophoridae

Carystoterpa fingens

Pseudaphronella jactator

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(Valid names are shown in Roman Type; synonyms and nomen nuda in *italics*)

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